STRAITS SETTLEMENTS

ANNUAL REPORT

OF THE

MEDICAL DEPARTMENT

FOR THE YEAR

1930

BY

J. GRAY, M.D.
Acting Principal Civil Medical Officer, Straits Settlements

London School of Hygiene & Tropical Medicine
LIBRARY
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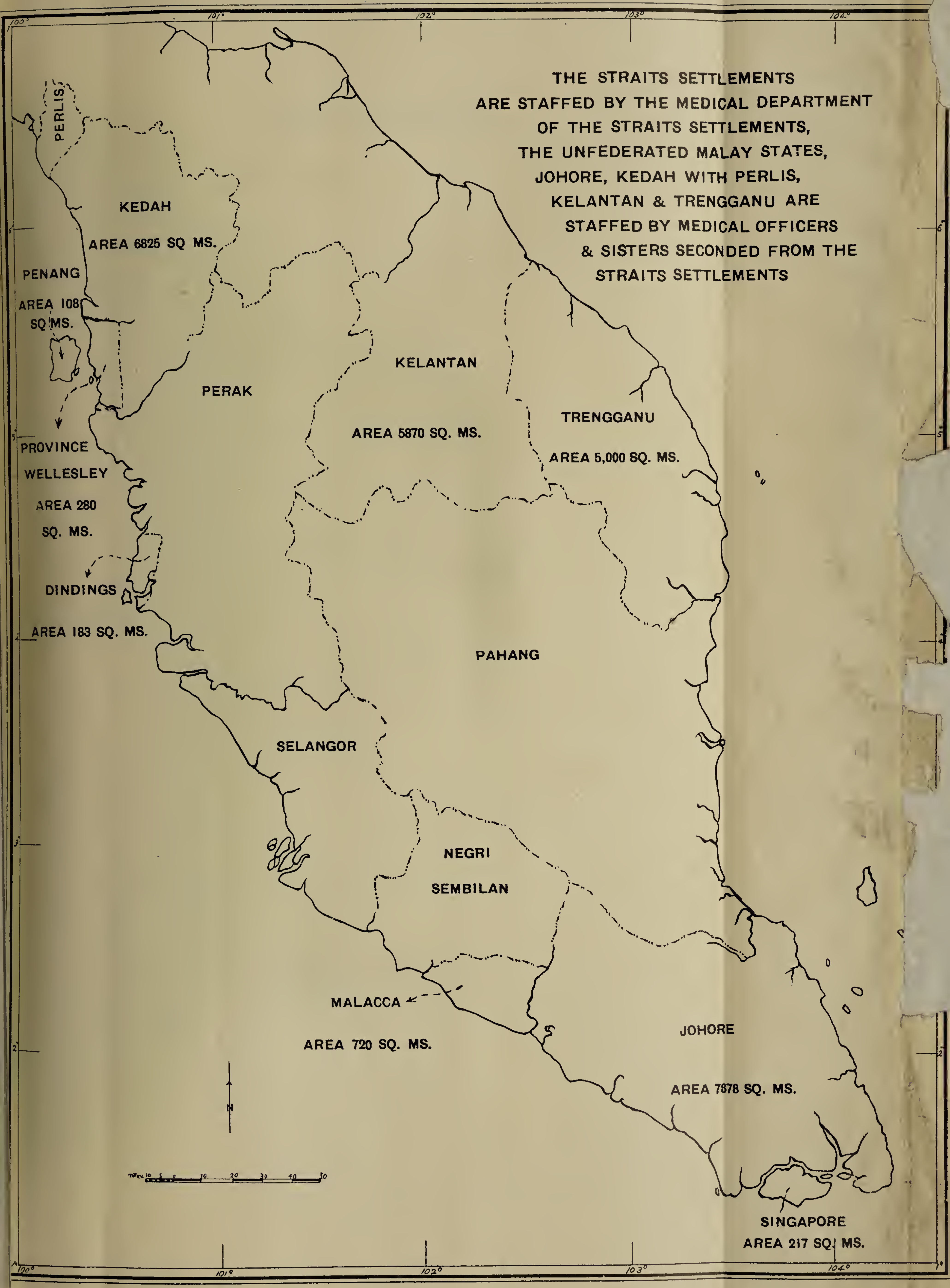

THE STRAITS SETTLEMENTS
ARE STAFFED BY THE MEDICAL DEPARTMENT
OF THE STRAITS SETTLEMENTS,
THE UNFEDERATED MALAY STATES,
JOHORE, KEDAH WITH PERLIS,
KELANTAN & TRENGGANU ARE
STAFFED BY MEDICAL OFFICERS
& SISTERS SECONDED FROM THE
STRAITS SETTLEMENTS

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The Straits Settlements Medical Report for the year 1930

I.—ADMINISTRATION

(*a*).—STAFF

1. The authorised number of the European staff of the Medical Department of the Straits Settlements in 1930 including officers to be seconded for service in the Unfederated Malay States, was 187.

2. The following officers were promoted to the posts mentioned during the year:—

Name	*Previous Post*	*Appointment*	*With effect from*
Dr. R. W. C. Kelly	Time-scale Medical Officer, S. S.	Chief Medical Officer, Social Hygiene, Singapore.	25-2-28
Dr. B. M. Johns ...	Time-scale Medical Officer, S. S.	Professor of Clinical Surgery, College of Medicine, Singapore.	18-8-28
Dr. G. V. Allen ...	Bacteriologist, F. M. S.	Principal, College of Medicine, Singapore.	14-3-30
Mr. B. A. R. Gater	Entomologist, F. M. S.	Professor of Biology, College of Medicine, Singapore.	18-8-30

3. The following officers were appointed to the service during the year:—

Name	*Appointment*	*Date of appointment*
Dr. R. C. Burgess ...	Health Officer ...	21st March, 1930
Dr. N. N. Lowther ...	Lady Medical Officer ...	17th April, 1930
Dr. J. H. Strahan ...	Health Officer ...	18th April, 1930
Mr. G. D. Frost ...	Lay Supt., Singapore ...	21st June, 1930
Dr. G. Q. Chance ...	Medical Officer ...	24th July, 1930
Dr. R. G. Spink ...	Health Officer ...	24th July, 1930
Dr. D. R. McPherson	Medical Officer ...	24th July, 1930
Dr. J. A. P. Cameron ...	Medical Officer ...	24th July, 1930
Dr. R. Shelley ...	Medical Officer ...	8th August, 1930
Dr. H. B. C. Wallace	Medical Officer ...	21st August, 1930
Dr. E. B. Murrell ...	Anæsthetist ...	21st August, 1930
*Dr. W. Hughes ...	Medical Officer ...	11th November, 1930
Dr. V. H. Norris ...	Medical Officer ...	1st December, 1930
Dr. W. D'Cruz ...	Health Officer ...	16th December, 1930

* Temporary

4. The following officers proceeded on leave during the year:—

Name	*Appointment*	*Date*
Dr. K. Black ...	Professor of Surgery, Singapore ...	20th January, 1930
Dr. W. J. Moir ...	Senior Health Officer, Johore	7th March, 1930
Mr. H. L. Hosking ...	Secretary, General Hospital, Singapore ..	28th March, 1930
Dr. F. R. Sayers ...	Chief Health Officer, Singapore ...	3rd April, 1930
Dr. J. Gray ...	Chief Medical Officer, Singapore ...	4th April, 1930
Dr. R. B. Hawes ...	Professor of Medicine, Singapore ...	2nd May, 1930
Dr. W. A. Young ...	Professor of Bacteriology, Singapore ...	19th June, 1930
Dr. E. R. Stone ...	Medical Superintendent, Mental Hospital, Singapore ...	27th June, 1930
Dr. J. Portelli ...	Health Officer, Penang	20th August, 1930
Dr. J. S. English ...	Professor of Midwifery, Singapore ...	3rd September, 1930
Dr. J. R. Kay-Mouat ...	Professor of Physiology, Singapore ...	13th September, 1930
Dr. J. W. Adams ...	Surgeon, Penang ...	20th November, 1930

5. The following officers returned from leave during the year:—

Name	*Appointment*	*Date*
Dr. N. G. Cooper ...	Health Officer, Singapore	6th January, 1930
Mr. W. Jones ...	Senior European Attendant, Singapore	25th January, 1930
Dr. J. S. Webster ...	Radiologist, Singapore	22nd March, 1930
Dr. J. W. Scharff ...	Senior Health Officer, Penang	29th March, 1930
Dr. N. H. Harrison ...	Chief Medical Officer, Trengganu ...	2nd May, 1930
Dr. R. B. MacGregor	Chief Medical Officer, Malacca	29th June, 1930
Dr. S. Winstedt ...	Lady Medical Officer ...	12th July, 1930
Dr. J. A. Cowan ...	Pathologist, Penang ...	12th July, 1930
Dr. J. H. Bowyer ...	Health Officer ...	17th October, 1930
Dr. K. Black ...	Professor of Surgery, Singapore ...	1st November, 1930
Dr. J. Gray ...	Chief Medical Officer, Singapore ...	1st November, 1930
Dr. W. J. Moir ...	Senior Health Officer, Johore	29th November, 1930
Mr. H. L. Hosking ...	Secretary, General Hospital, Singapore ..	8th December, 1930
Dr. S. W. Eveson ...	Health Officer ...	11th December, 1930

6. The following officers retired or resigned from the service during the year:—

Name	*Appointment*	*Date*
Dr. E. M. Bird ...	Lady Medical Officer, Penang	26th February, 1930 (resigned)
Dr. G.H.K. Macalister	Principal, College of Medicine, Singapore	14th March, 1930 (retired)
Dr. A. Barnsley ...	Anæsthetist, Singapore	7th May, 1930 (resigned)
Capt. K. B. Williamson	Professor of Biology, College of Medicine, Singapore ...	18th August, 1930 (retired)
Dr. T. C. Lonie ...	Medical Officer, Trengganu	22nd August, 1930 (resigned)
Dr. W. M. Lupton ...	Medical Officer, Johore	11th November, 1930 (resigned)

7. The following officers were seconded for service in the Unfederated Malay States during the year:—

Name	*Appointment*	*Date*
Dr. J. C. Carson ...	Medical Officer, Kedah	17th January, 1930
Dr. E. L. Robert ...	Medical Officer, Johore	18th August, 1930
Dr. R. C. Burgess ...	Health Officer, Kedah	22nd August, 1930
Dr. W. M. Lupton ...	Medical Officer, Johore	6th September, 1930
Dr. H. B. C. Wallace	Medical and Health Officer, Kelantan ...	28th October, 1930
Dr. W. Hughes ...	Medical Officer, Johore	11th November, 1930
Dr. N. N. Lowther ...	Lady Medical Officer, Johore	15th November, 1930
Dr. J. W. Winchester	Medical Officer, Brunei	1st December, 1930
Dr. R. A. McNab ...	Medical Officer, Kedah	16th December, 1930

8. *European Matrons and Sisters.*—Miss A Jones was promoted Matron, Grade II from 6th January, 1930.

Miss H. F. Priestley was promoted Matron, Grade I, Mental Hospital, Singapore, from 10th September, 1930.

The number of Matrons and Sisters in the service, including those seconded to the Unfederated Malay States, was 101 in 1930.

9 The local medical service numbered 73, mostly graduates of the King Edward VII College of Medicine, Singapore.

Of these, four filled specialist posts:—

Dr. J. H. L. Westerhout ...	Port Health Officer, Penang.
Dr. A. H. Wheatley ...	Medical Superintendent, Leper Settlement, Pulau Jerejak.
Dr. A. C. Dutta	Surgeon and Officer in resident charge of Durian Daun Hospital, Malacca.
Dr. V. H. Norris	Physician, General Hospital, Singapore.

Seven others held responsible prize appointments.

10 Dr. Westerhout retired on 19th June, 1930, and Dr. Wheatley's death on 17th February, 1930, was recorded with regret. Dr. Norris was promoted into the Malayan Medical Service on 1st December, 1930, and Dr. W. D'Cruz who was promoted to the rank of specialist grade from 1st January, 1930, was promoted into the Malayan Medical Service from 16th December, 1930

Dr. P. M. Mehta, Deputy Medical Officer, was promoted to the rank of specialist grade on 19th June, 1930.

(*b*).—ORDINANCE

The following ordinance affecting public health was enacted during the year.

An ordinance to amend Ordinance No. 63 (Lepers). It provides adequate legal provision for the transfer of lepers from an asylum in the Colony to a public asylum in the Federated Malay States, and from an asylum in a Malay State under British protection to an asylum in the Colony.

(*c*).—FINANCIAL

The actual medical and sanitary expenditure and the revenue collected in the various settlements were:—

Expenditure

	$	c.
Singapore	2,378,851	44
Penang	1,173,784	36
Malacca	307,428	65
Labuan	24,925	66
Total	$3,884,990	11

Revenue

	$	c.
Singapore	328,910	94
Penang	183,488	71
Malacca	21,562	97
Labuan	509	90
Total	$534,472	52

Of the expenditure $671,660.79 was spent on the Health Branch and $248,409.45 on the College of Medicine, Singapore.

It is to be remembered that in addition to the above the Health Services of the Municipalities spent:—

	$	c.
Singapore	932,257	16
Penang	153,164	00
Malacca	36,075	74
Total	$1,121,496	90

The total revenue of the Colony was $32,818,758.

Further particulars are given in Table *II* on page 88.

II.—PUBLIC HEALTH

(*a*).—GENERAL REMARKS

(*a*) A consideration of the monthly mortality figures in the Straits Settlements for the last five years is instructive—1926 and 1927 unhealthy throughout—1928 showing a welcome return towards better conditions:—

	1926	*1927*	*1928*	*1929*	*1930*
January ...	2,579	2,734	2,577	2,571	2,387
February ...	2,141	2,536	2,219	2,139	2,117
March	2,458	2,792	2,401	2,410	2,411
April	2,762	2,891	2,615	2,307	2,689
May	3,340	3,164	3,004	2,734	3,219
June	3,227	3,121	2,921	2,629	3,194
July	3,038	3,301	2,980	2,571	2,870
August ...	2,740	3,167	2,495	2,302	2,603
September ...	2,504	2,975	2,496	2,323	2,588
October ...	2,588	3,213	2,524	2,443	2,658
November ...	2,534	2,907	2,607	2,482	2,639
December ...	2,722	2,760	2,677	2,633	2,553
Total deaths ...	32,633	35,561	31,516	29,544	31,928
Estimated population ...	1,025,835	1,059,968	1,095,635	1,131,903	1,168,806
Death-rate per thousand...	31·81	33·55	28·76	26·10	27·32

The death-rate for Singapore Settlement in 1930 was 27·62, for Malacca Settlement 27·88, for Penang Island 26·67, and for Province Wellesley 25·54.

It is to be noted that the rainfall in all settlements was somewhat below the average—in Singapore 2,113·9 m.m., in Malacca 2,158·3 m.m., in Penang 2,417·4 m.m.—and that deficient rainfall in most years connotes an increased death-rate.

The death-rate in the Municipal area of Singapore was 27·73 per thousand against 26.21 in 1929. Seven hundred and thirty of those who died were resident less than 3 months in Singapore. Deducting these, the Singapore Municipal death-rate is 26.26 per thousand.

There were 242,149 Chinese immigrants during the year; 167,903 Chinese deck passengers returned to China.

Indian immigrants totalled 39,728. Against these, 100,763 deck passengers returned to India.

The infantile death-rate was 193·94 per thousand as against 181·92 in 1929.

(*b*) The deaths registered in the Straits Settlements are divided as regards Certificates as follows:—

Deaths registered in the Straits Settlements as regards certificate in the year 1930.

Particulars	*Singapore*	*Penang*	*P. W.*	*Dindings*	*Malacca*	*Labuan*	*Total*
Died in Hospitals ...	3,341	1,239	390	57	673	10	5,710
Certified by Outside Medical Practitioners ...	5,358	793	1	—	377	7	6,536
Certified by Registering Officers after death	4,457	2,018	18	—	295	14	6,802
Uncertified ...	3,314	1,192	3,293	469	4,394	218	12,880
Total	16,470	5,242	3,702	526	5,739	249	31,928

Less than 39 per cent of those dying are under the care of a registered medical practioner before death and certified accordingly. Of the remainder, some 21 per cent are certified by qualified registering officers who inspect the body after death, or by a coroner. In some 40 per cent, the cause of death is uncertified, and is guessed by a subordinate police officer from the statements made to him by the relative or friend of the deceased who reports the death. The relative inaccuracy of the stated causes of death will be realised from these facts.

In the Municipality of Singapore a higher standard of accuracy is attained than in the rest of the Colony, for 68·2 per cent of deaths are certified by registered medical practitioners who have attended the deceased, 28·4 per cent by qualified registrars inspecting after death, 3·3 per cent by the coroner.

(*b*).—GENERAL DISEASES

1. *Beri-beri.*—The deaths registered as due to Beri-beri in the last 19 years are: —

Year	*Number deaths*	*Year*	*Number of deaths*
1911 (Census 714,069)	2,056	1921 (Census 881,939)	1,299
1912	1,926	1922	1,388
1913	1,657	1923	904
1914	1,483	1924	910
1915	1,079	1925	973
1916	1,075	1926	1,098
1917	2,075	1927	1,528
1918	1,958	1928	1,146
1919	1,430	1929	944
1920	1,025	1930 (Est. pop. 1,168,806)	1,047

Nine hundred and three of the deaths due to beri-beri occurred in Singapore. The majority contracted the disease elsewhere. The real death-rate from beri-beri is lower than the stated figures, for it is certain that some deaths due to affections of the central nervous system are returned as beri-beri. Since the food rationing in the years 1918 to 1921, which led to a less exclusive use of overmilled rice in the diet of the Chinese labouring class, beri-beri has not risen to the previous high figures, but there is still room for improvement.

The low figures in 1915 and 1916 were due to the repatriation of a large number of invalid Chinese, as a war measure.

2. *The Pneumonias.*—These very common diseases are increased by city conditions.

The Municipality of Singapore, which is estimated to contain some 43 per cent of the population of the Colony, returned 78 per cent of the total deaths from pneumonia. The total deaths under this head were 2,343 (1,829 in Singapore city) against 2,502 (1,770 in Singapore city) in 1929. Of the total 1,136, including a number of children, were classed as broncho-pneumonia.

3. *Convulsions.*—Sixteen per cent of the total deaths in the Colony were returned under this vague head, which comprises a variety of infantile disorders. "Sawan" the Malay equivalent of convulsions is one of the commonest causes of death reported. Numbers so registered were 5,136 (1,080 in Singapore city) against 4,692 (1,073 in Singapore city) in 1929. During the year, the practice of examining a throat swab in all cases of deaths of children under 10 years of age, was continued—children who had not been seen in life by medical men. 1,098 such swabs were examined, and in 43 or approximately 4%, the diphtheria bacillus was recovered in culture. Twenty-two of the children were under 1 year of age and 21 from 1 to 6 years. The actual certified causes of death were Convulsions 12, Bronchitis 9, Pneumonias 5, Gastritis and Gastro-enteritis 6, Dysentery 4, Malnutrition 3, Tuberculosis 3 and Influenza 1. In this, of course, there is no scientific

proof that the cause of death was diphtheria but the figures are significant. No attempt was made to follow up these results and until that has been done, it would be unsafe to deduce over much. To get even a throat swab requires a good deal of tact, and it is, therefore, considered necessary to refrain from disturbing people even more by following up the result of the swab. It has, however, been considered advisable to pursue the investigation a little further and swabs will be taken on subsequent investigations from other persons in the house. The positive swabs were evenly distributed throughout the year and were from all over the town. They seemed to have little or no connection with each other.

(*c*).—DANGEROUS INFECTIOUS DISEASES

(1) *Plague.*—No plague occurred in the Colony during the year.

(2) *Cholera.*—No cholera occurred in the Colony during the year.

(3) *Small-pox.*—There were 148 cases and 59 deaths (of which 3 were imported cases).

Vaccinations.—One hundred and seventy-one thousand five hundred and eighty-three vaccinations and revaccinations were performed as follows:—

Perfect	37,311
Modified	3,522
Failed	4,060
Not seen	126,690

The big increase in vaccinations was due to the prevalence of small-pox in Province Wellesley, which has since subsided.

(4) *Cerebro-spinal Meningitis.*—There were 29 cases and 23 deaths (of which 2 were imported cases).

OTHER INFECTIOUS DISEASES

(*d*) *Tuberculosis*:—

(1) The distribution of Tuberculosis in the Colony proves that it is prevalent mainly in the three cities.

(2)

Year	*1929*	*1930*
Estimated population of the Straits Settlements	1,131,903	1,168,806
Total deaths from all causes ...	29,544	31,928
Death-rate per thousand ...	26.10	27.32
Total deaths from pulmonary tuberculosis	2,710	2,795
Pulmonary tuberculosis death-rate per thousand	2.30	2.31

(3)

Year		*Deaths from tuberculosis in the Colony*	*Deaths from tuberculosis in Singapore city*
1926	...	2,526	1,570
1927	...	2,903	1,523
1928	...	2,727	1,411
1929	...	2,710	1,500
1930	...	2,795	1,622

(4) Comparative prevalence of Tuberculosis in Urban and Rural areas, 1930:—

	Estimated Population	*Death-rate from all diseases per thousand*	*Number of deaths from Tuberculosis*	*Tuberculosis death-rate per thousand*
Singapore Municipality ...	495,818	27.73	1,622	Cities 3·2
George Town (Penang) ...	146,935	26.81	474	
Malacca Municipality ...	44,135	25.92	115	
Rural areas of Colony ...	481,918	27.13	584	Rural areas 1·2

(5) Amelioration of the conditions of the life of the poor, and especially as regards housing, is the most important preventive measure. Housing improvement schemes are in operation in the Municipalities of Singapore and Malacca, and may be introduced in the Municipality of Georgetown (Penang). These schemes will, it is hoped, lead to the early abolition of congested tenement houses, and, in particular, of ill-lighted and ill-ventilated cubicles.

(6) Separate hospital provision for advanced cases of tuberculosis exists in most hospitals, but the provision of one or two separate hospitals for such cases is desirable; a start will probably be made in Singapore this year. Compulsory isolation of the dangerously infective is not yet practicable.

(7) As regards the early case, facilities for treatment exist in the General Hospital, Singapore, and will shortly be provided at the General Hospitals in Penang and Malacca.

(8) With the sustained diminution of overcrowding in the cities by the operation of improvement schemes, the establishment of Municipal Tuberculosis Clinics for the detection and education of the early case, should now be seriously considered.

(9) The teaching of hygiene in schools and child welfare centres is a useful adjunct against this disease.

(*c*).—MALARIA

In considering malaria, deaths registered as "unspecified fever" some of which are due to malaria, must be taken into account

Figures for the past five years are:—

Year	*Malaria*	*Fever unspecified*	*Total*
1926 ...	... 6,452	2,398	8,850
1927 ...	... 6,283	2,161	8,444
1928 ...	... 5,798	1,636	7,434
1929 ...	... 4,648	1,764	6,412
1930 ...	... 5,018	1,995	7,013

As against the previous year, there is a decrease in Penang Island from 582 to 522 and in Province Wellesley from 1,327 to 1,226: figures for the Settlement of Malacca 1,521 against 1,370: for the Settlement of Singapore 1,546 against 1,179, of which 1,403 occurred within Singapore City. The Municipal Health Officer, Singapore, points out that in his opinion, less than 22 per cent of these were infected in Singapore City. In this connection, the

Singapore hospital malaria admission figures which totalled 6,554, are informative: 2,958 of these were resident in Singapore City, but it seemed likely that many of them had contracted the infection outside municipal limits: 2,890 were either from rural Singapore, Johore or the Dutch Islands near Singapore; the home address of the remaining 706 was uncertain.

(*f*).—BOWEL DISEASES

(1) The dysenteries were responsible for 770 deaths against 673, 902, 1,096 and 1,015 deaths in the four previous years.

(2) Diarrhœa and Enteritis caused 1,464 deaths of which 686 were in children under one year of age, against 1,380, 1,230, 1,409 and 1,169 deaths in the four previous years.

(3) *Enteric Fever*:—

Year	*Deaths in the Colony*	*Cases notified in Singapore Municipality*
1926 ...	... 120	197
1927 ...	... 188	235
1928 ...	... 174	230
1929 ...	... 118	133
1930 ...	... 132	156

The return of cases notified in Singapore Municipality supports the supposition that enteric fever is not a common disease: the enteric mortality has never been high in the Colony.

(*g*).—DIPHTHERIA

Year	*Deaths in the Colony*	*Cases notified in Singapore Municipality*
1926 ...	... 15	46
1927 ...	... 16	29
1928 ...	... 21	59
1929 ...	... 31	57
1930 ...	... 31	63

Reference to my remarks under heading "convulsions" will show that there has been a considerable amount of undiagnosed diphtheria, at any rate in Singapore.

(*h*).—SCARLET FEVER

There were two cases, both in Singapore.

(*i*) VENEREAL DISEASES

The attendances at venereal clinics and dispensaries numbered 267,746 against 238,648 in 1929. The ratio of total attendances to new cases was 9·45. Six hundred and forty-one seamen made 5,567 attendances.

During the year two meetings of the Social Hygiene Advisory Board were held.

(For details of anti-venereal work *vide* Appendix G, page 76).

(*j*) LEPROSY

(1) The number admitted to institutions increased by 70 as against 28 in 1929.

		Remaining on 31/12/29	Ad-mitted	Died	Abs-conded	Trans-ferred	Dis-charged	Remaining on 31/12/29
Men	Pulau Jerejak, Penang ...	847	(*b*) 211	125	53	16	4	860
	Singapore ...	28	138	7	2	95	19 (*a*)	43
Women	Penang ...	61	18	8	10	3	4	54
	Singapore ...	28	21	4	—	—	8	74
	Total ...	1,001	388	144	65	114	35	1,031

(2) *Treatment.*—Nearly all the lepers are voluntarily under treatment; the death-rate continues to decrease.

—		1924	1925	1926	1927	1928	1929	1930
Cases	...	891	996	1,070	1,111	1,147	1,255	1,389
Deaths	...	150	143	140	144	121	122	144

The pure expressed oil of Hydnocarpus and the preparation known as Alepol have given the best results.

Reports on Leper Settlements are attached. (*Vide* Appendices *A* and *B*, pages 40 to 44).

(*k*).—HELMINTHIC DISEASES

Ankylostomiasis.—The total number of primary ankylostomiasis cases treated as in-patients and of deaths therefrom in the hospitals of the Colony for the past five years is :—

Year		Remained	Admitted	Total treated	Deaths
1926	...	138	3,996	4,134	142
1927	...	138	3,874	4,012	102
1928	...	144	3,037	3,181	84
1929	...	96	2,731	2,827	63
1930	...	130	2,576	2,886	55

The rural Sanitation Campaign initiated in co-operation with the Rockefeller Foundation between the years 1926 and 1928 has continued to give good results.

(*l*).—IMPROVEMENT OF PUBLIC HEALTH

Two graphs and three diagrams numbered I, II, III, IV and V are enclosed. The graphs demonstrate the improvement in public health during the last generation.

I is a graph depicting the mean monthly death-rate in Singapore from all causes in the decennial periods 1903 - 1912 and 1913 - 1922 and in the seven years 1923 to 1930. Material is not available to make such a graph for the whole Colony.

II is a graph giving a monthly comparison between the last two census years 1911 and 1921 and the year 1930.

Diagrams III and IV and V explain themselves. It is not correct to state that every case of pneumonia is avoidable and many cases of convulsions, though not shewn as preventable, are preventable.

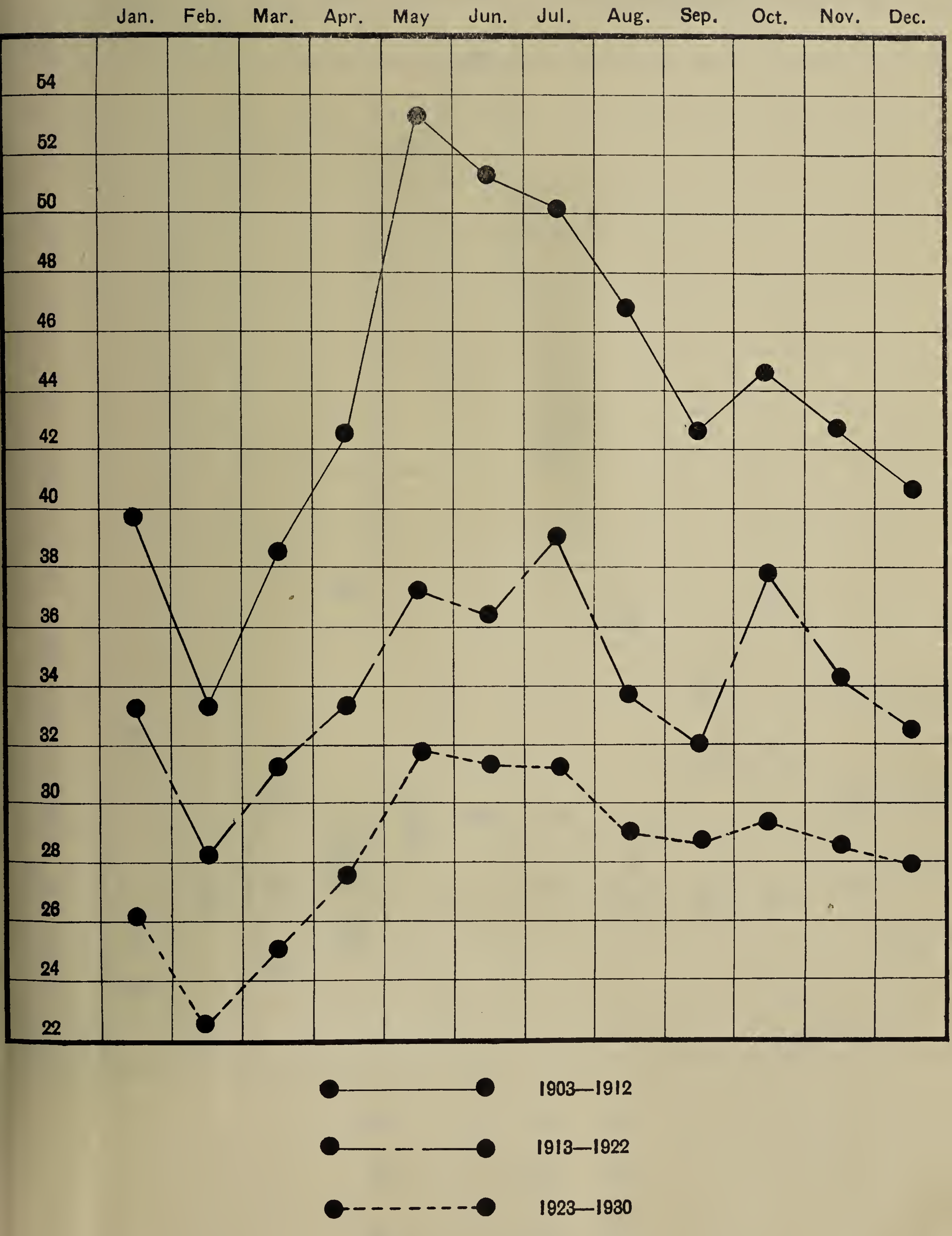
Nevertheless the diagrams do give an idea of the amount of disease and of death that is preventable.

(*a*) Banished to China.

(*b*) Of this, 95 were lepers transferred from Singapore.

SINGAPORE

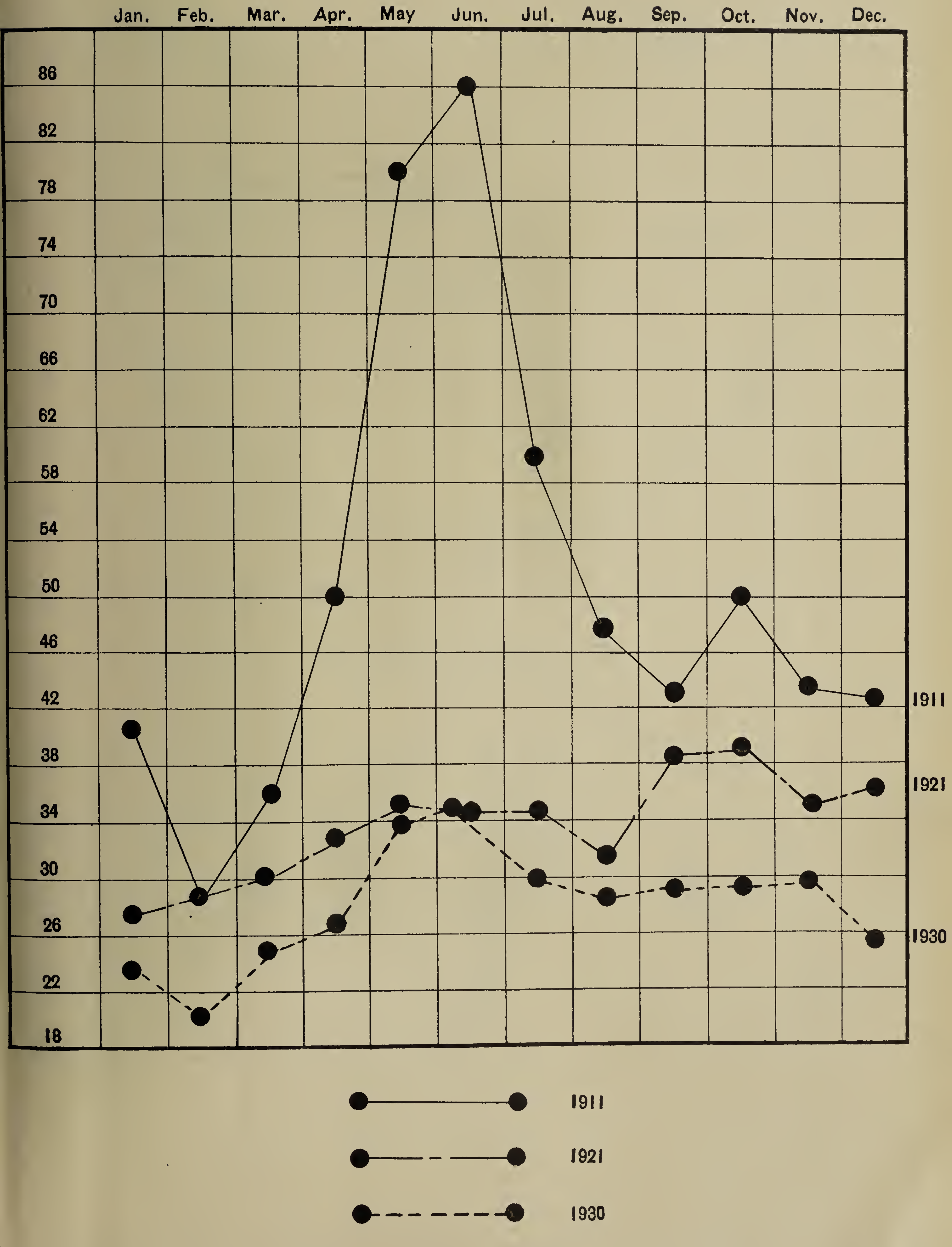
MEAN MONTHLY DEATH-RATE FROM ALL CAUSES



II

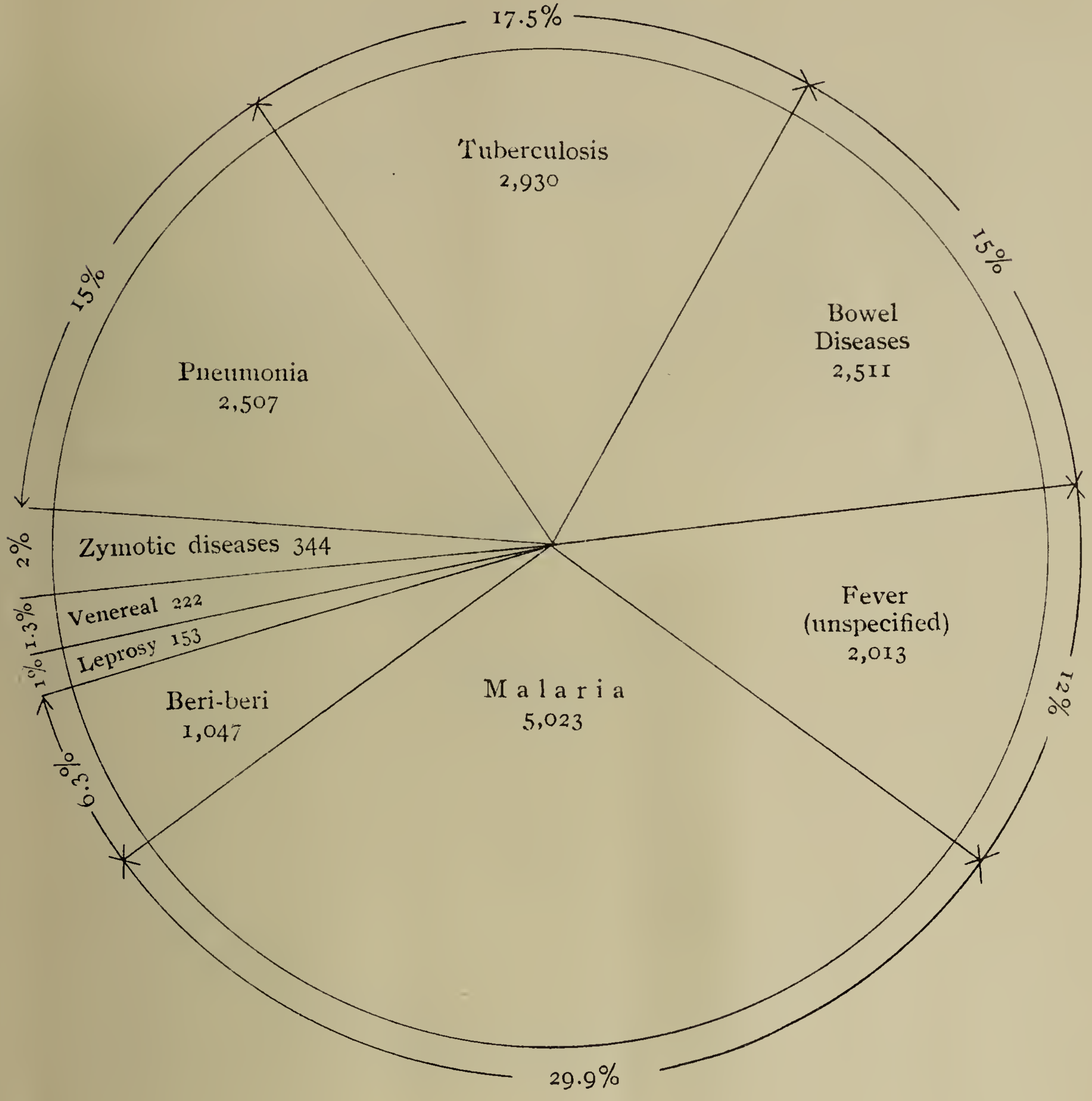
SINGAPORE

MONTHLY DEATH-RATE FROM ALL CAUSES

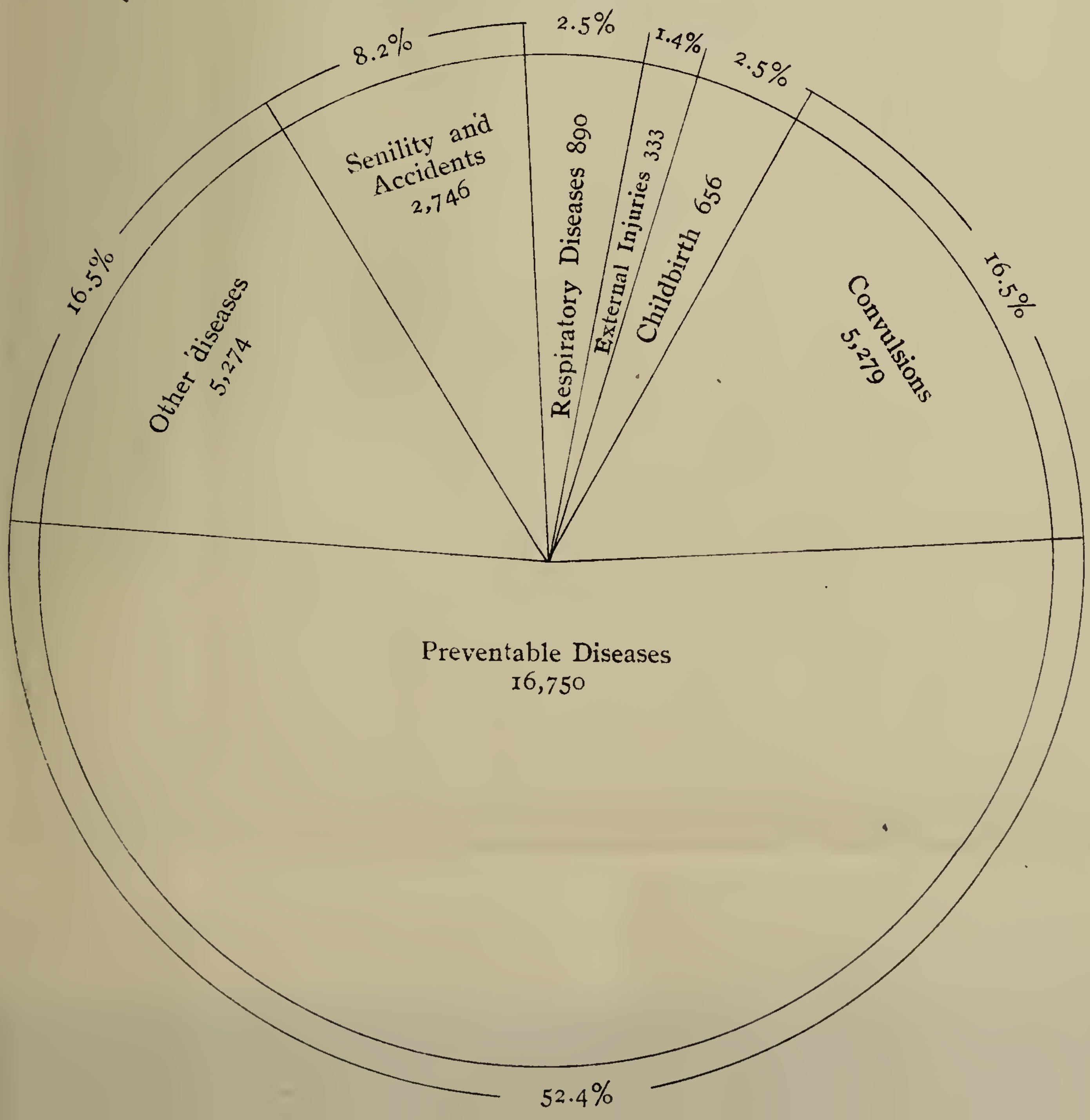


Deaths from Infective and Preventable Diseases Registered in the S.S. in 1930.

Total deaths from Preventable Diseases—16,750.



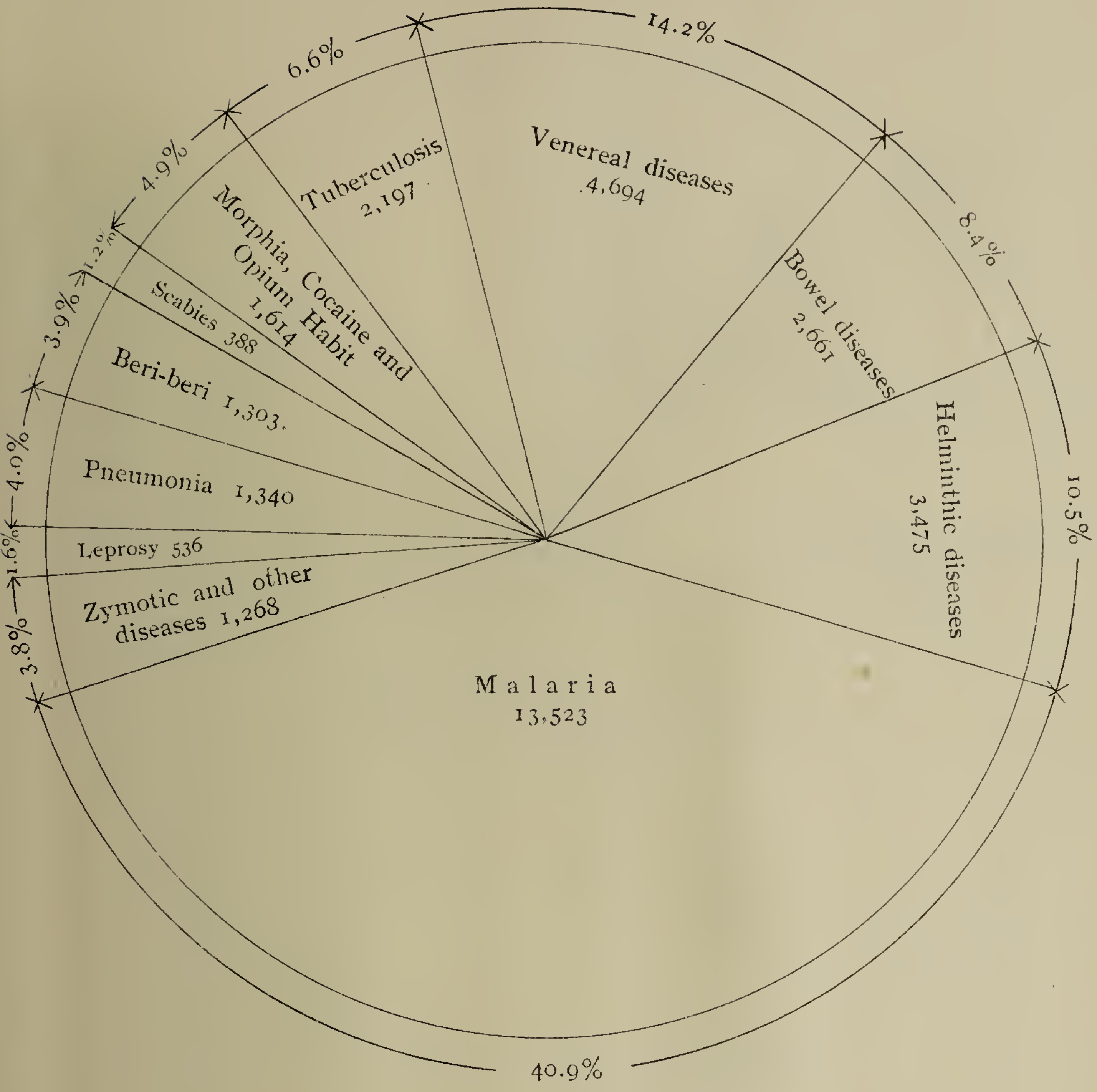
Total deaths from all causes—31,928.



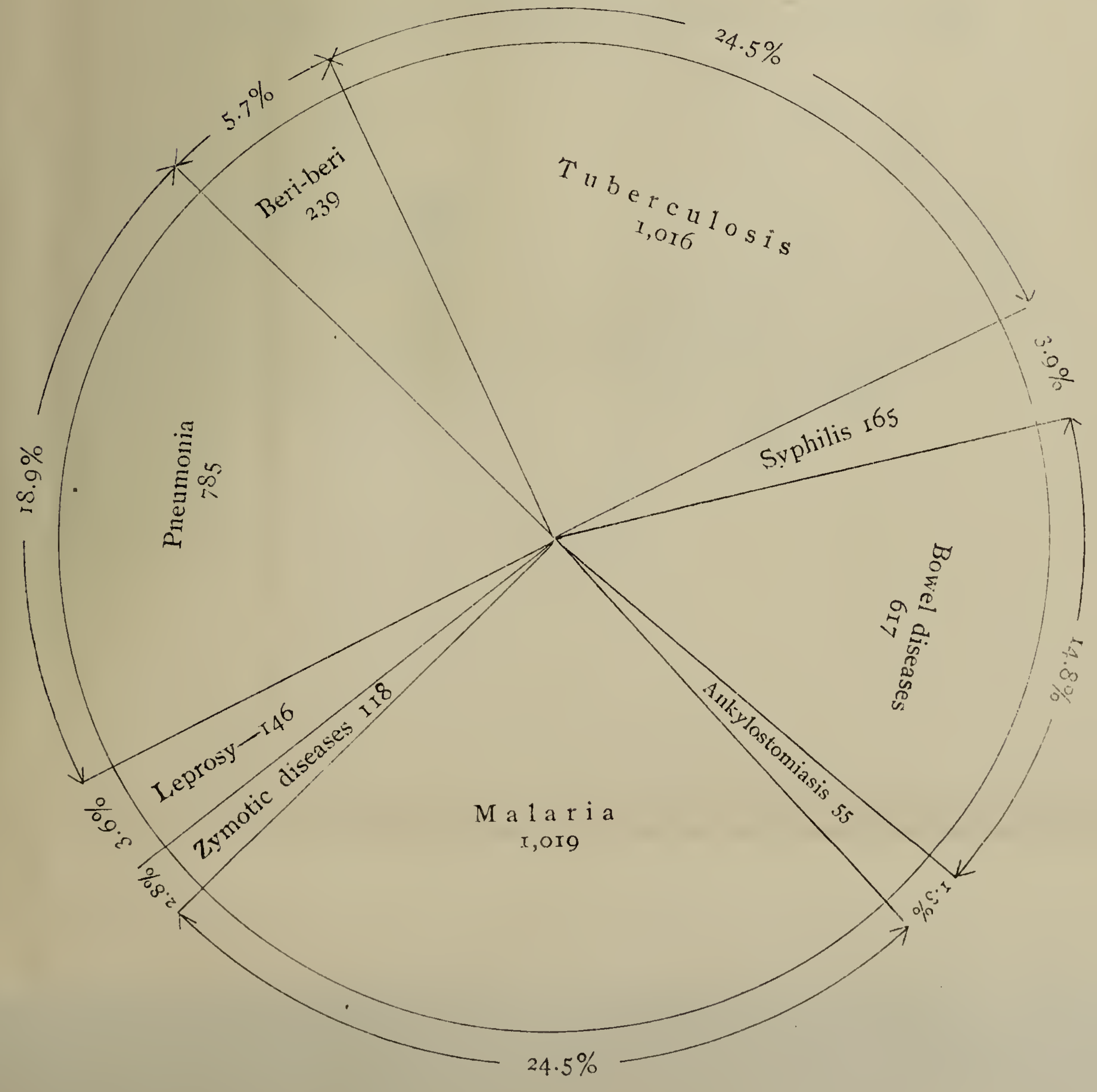
IV

Infective and Preventable Diseases admitted to the S.S. Govt. Hospitals during 1930.

Total cases—32,999.

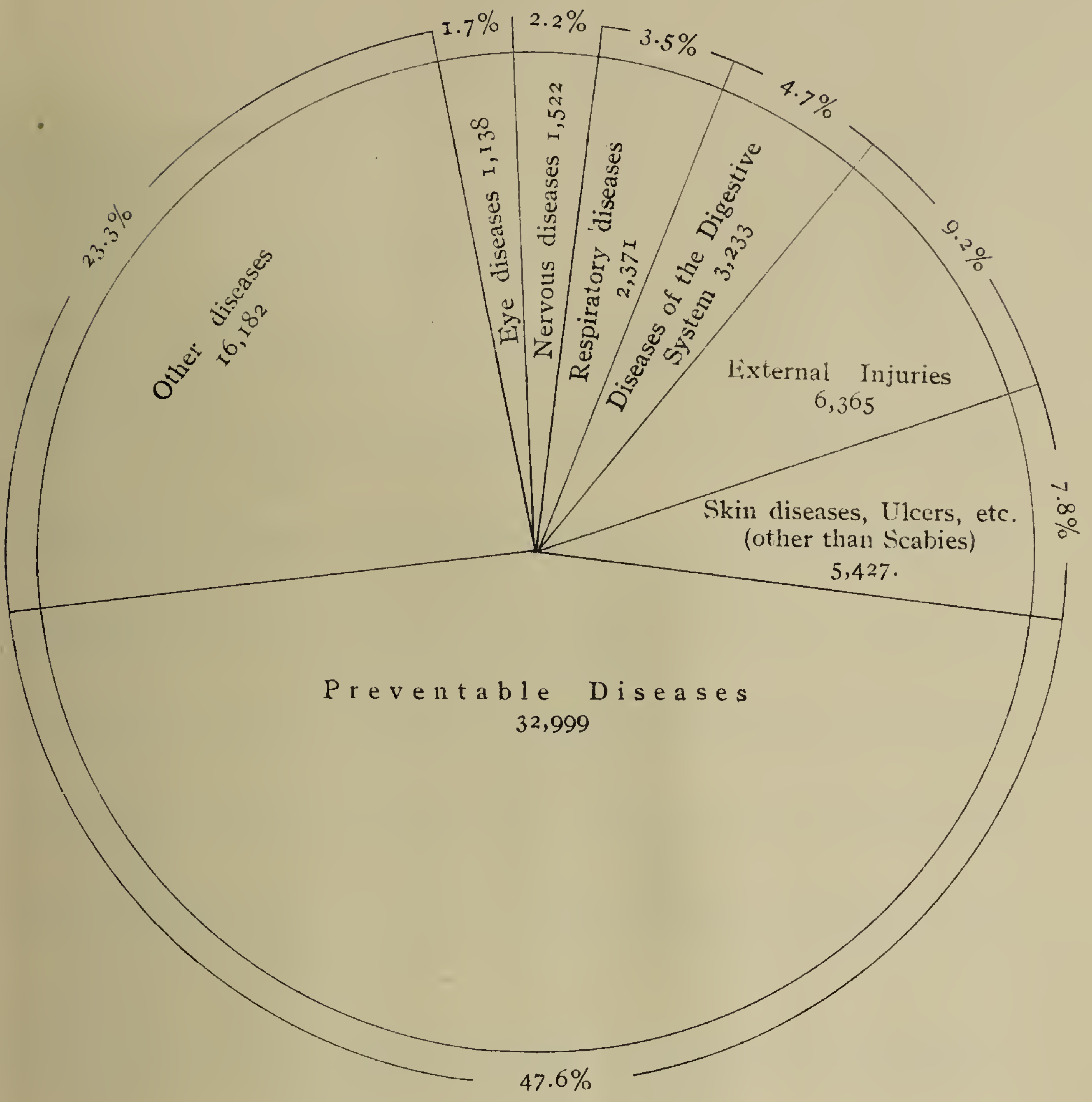


Total Deaths from Preventable Diseases in the S.S. Govt. Hospitals—4,160.

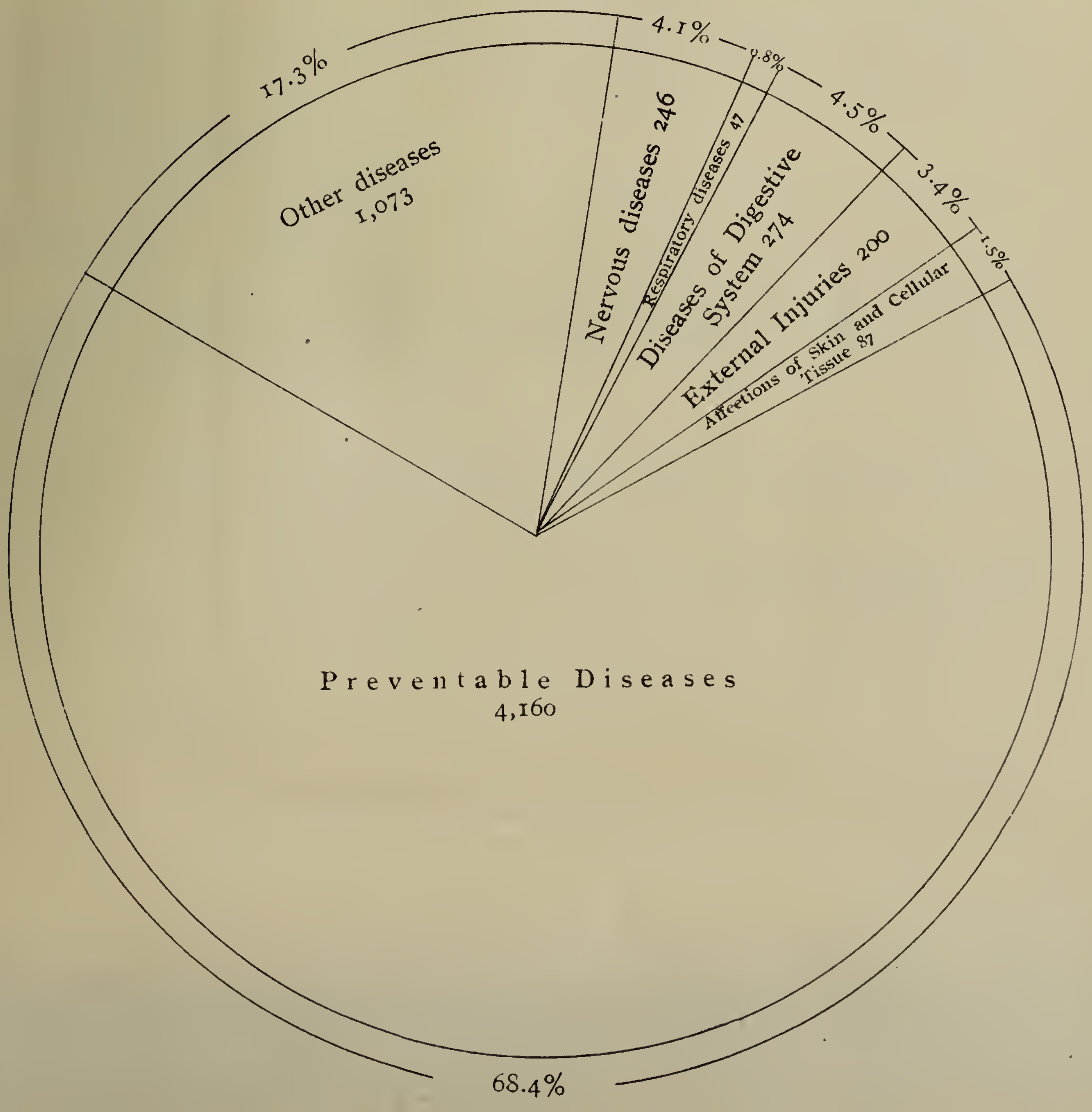


General Systemic and Preventable Diseases admitted to the S.S. Govt. Hospitals during 1930.

Total cases—69,237.



Total deaths from all causes in the S.S. Govt. Hospitals—6,087



(*m*).—VITAL STATISTICS

1. Under heading Table III, pages 147 to 156 the following ten tables are appended—

Table III A.—Estimated population with birth and death-rates for the years 1929 and 1930.

Table III B.—Quarterly death-rates for various parts of the Colony during the past three years.

Table III C.—Population estimated racially and collectively of the Straits Settlements for the years 1930, 1929 and 1928.

Table III D.—Births registered in the Straits Settlements during 1930 and their ratio per mille of population.

Table III E.—Births registered in the Straits Settlements during 1930 according to Nationalities.

Table III F.—Deaths registered in the Straits Settlements during 1930 according to Nationalities.

Table III G.—Deaths registered in the Straits Settlements during 1930 under different groups of ages.

Table III H.—Table showing the Infantile Mortality (under one year) in the Straits Settlements including children born elsewhere.

Table III I.—Table showing the Infantile Mortality (under one year) in the Straits Settlements, according to Nationalities, excluding children born elsewhere.

Table III J.—Deaths registered in the Straits Settlements as regards certificates in the year 1930.

2. The number of births registered throughout the Straits Settlements during the year 1930 was 44,703 (males 23,204 and females 21,499) as against 42,102 (males 21,982 and females 20,120) in the previous year: this represents a crude birth-rate of 38.25 per thousand persons living as compared with 37.20 in 1929 and 36.03 in 1928.

3. In every 100 births registered, there were 51.91 males and 48.09 females, giving a percentage of 92.66 females to every 100 males born.

4. One thousand seven hundred and sixty one still births were registered in 1930 as compared with one thousand eight hundred and thirty one still births in the previous year—the percentage to those born alive was 3.94 as against 4.35 in 1929 and 4.55 in 1928.

5. The highest birth-rate according to nationalities was 42.48 per thousand of population amongst Malays, the Chinese coming next with a ratio 39.52 per thousand of population *vide* Table *III E.*

6. The deaths from all causes in 1930 were 31,928 (males 19,950 and females 11,978) as against 29,544 (males 18,660 and females 10,884) in the previous year.

The average death-rate for the last 10 years is 29.22 per thousand.

Death rates for the last 30 years are:—

Year	*Ratio per mille*	*Year*	*Ratio per mille*
1901 (Census)	39·85	1916	30·70 (*a*)
1902	42·96	1917	36·98
1903	39·49	1918	43·85 (*b*)
1904	39·00	1919	33·04
1905	40·51	1920	33·20
1906	37·82	1921 (Census)	31·54
1907	39·07	1922	30·68
1908	43·06	1923	27·80
1909	37·58	1924	27·42
1910	41·88	1925	27·26
1911 (Census)	46·46	1926	31·81
1912	39·01	1927	33·55
1913	34·93	1928	28·76
1914	34·13	1929	26·10
1915	29·15 (*a*)	1930	27·32

The Municipal Health Officer, Singapore, reports the death-rate for that city as 27.73 per thousand against 26.61 and 28.44 in the two previous years. Seven hundred and thirty persons died who had been less than three months resident in Singapore: deducting these the death-rate is reduced to 26.26 per thousand.

7. The highest racial death-rate in the Colony was classed under Chinese with a ratio of 28.82 per thousand of population, the Malays coming next with a ratio of 27.39 per thousand of population.

8. It is always difficult to assess the true infantile mortality. In illustration of this the figures for the Singapore Municipal area where registration is more accurate than elsewhere are quoted. Seventeen thousand seven hundred and two children were born in this area, a birth-rate of 35.70 per mille. Infantile deaths numbered 3,877, a rate of 219.0 per 1,000 births.

(*a*) Several thousands of decrepit Chinese were repatriated in 1915 and 1916 as a war measure

(*b*) The Influenza pandemic occurred in 1918.

9. Table shewing the sick, invaliding and deaths of European officials of all ranks: —

	1927	*1928*	*1929*	*1930*
(1) Total number of European officials on the establishment	689	698	822	835
(2) Average number resident in Colony	617	607·4	709·5	734·6
(3) Total number on sick list	246	427	433	483
(4) Total number of days on sick list	3,125	4,952	4,536	4,408
(5) Total number invalided	9	6	10	12
(6) Total deaths	3	4	2	7
(7) Total deaths in Colony	3	4	2	6
(8) Average daily number on sick list	·57	·69	12·43	12·07
(9) Average number of days on sick list	12·7	11·62	10·47	9·12
(10) Percentage of deaths to number resident	·48	·65	·28	·95
(11) Percentage of sick to the average number resident during the year	39·87	70·29	61·02	65·75

10. Table shewing the sick, invaliding and deaths of non-European officials: —

	1927	*1928*	*1929*	*1930*
(1) Total number on the establishment (*a*)	5,994	9,445	11,362	13,377
(2) Average number resident	5,252	8,961·4	10,776·8	12,594·2
(3) Total number on sick list	2,948	6,244	13,357	12,702
(4) Total number of days on sick list	38,708	49,728	69,292	68,393
(5) Total number invalided	64	132	235	387
(6) Total deaths	24	36	49	77
(7) Average daily number on sick list	·57	1·25	189·84	187·37
(8) Average number of days on sick list	6·5	7·96	5·18	4·65
(9) Percentage of deaths to number resident	·45	·40	·45	·61
(10) Percentage of sick to number resident	56·11	69·67	123·94	116·73

(*a*) The increase is due to the fact that Police non-commissioned officers and constables are included in 1928 and 1929.

III.—HYGIENE AND SANITATION

(*a*) ORGANISATION OF THE HEALTH BRANCH

The Principal Civil Medical Officer is Chief Health Officer of the Straits Settlements.

There is a Chief Health Officer, Singapore, who is responsible for the port and the rural areas of Singapore, and for the school inspection of the whole Settlement.

He also lectures in the College of Medicine and in the Sanitary Inspectors' School.

Under him are a Rural Health Officer, a Deputy Rural Health Officer, a Health Officer, Schools, a Lady Health Officer, Schools, a Health Officer, Quarantine Station, a Port Health Officer, a Senior Deputy Port Health Officer, and an Assistant Health Officer.

In Penang, there is a Senior Health Officer who is responsible for the Port of Penang, the rural areas of the Settlement which include rural Penang, Province Wellesley, and the Dindings, and the Schools of the Settlement. Under him there are a Health Officer, Province Wellesley, and a Deputy Rural Health Officer, Penang; and the Deputy Medical and Health Officer, Lumut, and the three Assistant Medical Officers in the Province Wellesley District Hospitals, as far as the health work of their districts is concerned. Under him also is the Port Health Officer of the Quarantine Station.

(The Municipalities of Singapore and Penang have their own Health organisation, comprising in Singapore a Municipal Health Officer with 3 other Health Officers, a Bacteriologist, and several Assistant Health Officers, and in Penang a Municipal Health Officer, a second Health Officer, and an Assistant Health Officer.)

In Malacca, there is a Government Health Officer, and an Assistant Health Officer who function for the whole Settlement, including the Municipality of Malacca.

The Assistant Medical Officers in charge of the two district hospitals in Malacca are under the health officer as regards their health work.

In the Island of Labuan the Medical Officer is also Health Officer.

The Unfederated Malay States Health Branches are staffed by officers seconded from the Straits Settlements.

Johore now has a cadre of a Senior Health Officer and three Health Officers, Kedah a Senior Health Officer and one Health Officer, Kelantan one Health Officer, Trengganu one Health Officer; in the State of Brunei in Borneo the Medical Officer is also Health Officer and Assistant Superintendent of Indian Immigrants.

There are European Chief Sanitary Inspectors in both Singapore and Penang, and there is a staff of locally trained Sanitary Inspectors in all districts.

The rural area of Singapore is divided into five sanitary districts, similarly the rural area of Penang Island is divided into five sanitary districts, Province Wellesley into four sanitary districts, Malacca into three sanitary districts. The Dindings and Labuan each constitute a sanitary district.

As a rule one or two sanitary inspectors are stationed in each sanitary district.

The Health Office of the district is the centre from which the district health propaganda and welfare work are developed.

Where there is a district hospital the health office is usually situated in or beside the hospital.

There are Rural Health Sisters in Singapore, Penang and Malacca under whom locally trained district health nurses hold maternal and child welfare clinics, do house and school visiting in the villages and kampongs, and in some cases maternity work.

The travelling motor dispensaries in the three Settlements co-operate in these duties, in addition to treating the sick.

Details of rural areas in the Colony, 1930:—

	Area in square miles	*Estimated population*	
Singapore	185	100,391	481,918
Penang Island	98½	49,651	
Province Wellesley	280	144,967	
Dindings	183	19,068	
Malacca	720	161,685	
Labuan	28½	6,156	
Add municipal area, Malacca which is staffed by part-time Government Officers	—	44,135	
	1,495	526,053	

(*b*) GENERAL REVIEW OF WORK DONE AND PROGRESS MADE

(I) PREVENTIVE MEASURES

1. *Mosquito and Insect borne diseases.*—

Government provided the following votes for anti-mosquito work in 1930:—

Settlement	*Vote*
Singapore	120,000
Penang	95,000
Malacca	33,000
Labuan	7,000

Continued progress is being made in anti-malaria measures throughout the Island of Singapore. In the rural areas the policy adopted is to destroy the breeding places of dangerous mosquitoes within a half mile radius of the outskirts of the principal villages and kampongs. Anti-mosquito oiling is used as a temporary measure followed, when possible, by the permanent drainage of dangerous ravines and swamps. Periodic mosquito surveys are used as a control, supplemented by spleen surveys, malaria case records, and the vital statistics of each district. More than 20,000 anopheline larvæ were collected of which 35% were A. Maculatus, the chief malaria carrier in the rural area. 12.5 miles of subsoil pipes were laid at an average depth of 6 feet and 5 miles of main arterial open cement drains were constructed, permanently draining an area of 6 square miles. Seventy two thousand six hundred and five gallons of anti-malarial mixture, costing $14,715.31 were sprayed on potential breeding places to protect an area of 20 square miles. The total expenditure was $135,480.51 inclusive of $16,022.84 recovered for work done on private premises.

From 1921 up to the end of 1930, approximately $806,359 have been spent on rural anti-malaria work in Singapore Island. The number of persons protected from malaria by this work, is approximately 52,000. The cost per head per annum is $2.20.

A complete record of mosquito breeding places discovered since 1921 has been kept. Plans of mosquito surveys are prepared and collections of mosquitoes are made.

(2) Provision was first made for anti-mosquito work in the Settlement of Penang in 1924. Special expenditure votes from that year have been $50,000 in 1924 and 1925, and $75,000 in 1926 and 1927, rising to $95,000 since 1928. Such liberty has made it possible for the Health Branch to undertake measures for the permanent control of malaria in village areas that were notoriously malarial. The seriousness of the malaria problem in Penang Island is due to the widespread distribution of ideal breeding places for A. Maculatus. Anti-malaria measures are mainly directed against the larval stage of the mosquito. An area is placed under control by dealing with all breeding places for a distance of half a mile. At the commencement, the application of larvicide (anti-malaria oil or Paris Green) is resorted to; permanent works, drainage, filling, etc. are gradually instituted when feasible. The protection of all the zones that were under control has been effectively maintained since 1928, additional zones have been placed under control, and some of the old ones have been extended. On Penang Island newly controlled areas are:—Balik Pulau, Telok Bahang, Telok Kumbar and Bayan Lepas. The Glugor and Sungei Nibong areas have been extended as has also the zone of protection on Penang Hill.

In Province Wellesley, the following centres have been made protected zones:—Bukit Mertajam, Sungei Bakap, Butterworth, Bukit Tambun, Batu Kawan, Kubang Semang, Tassek, Bukit Tengah, Nibong Tebal, Prai, the first five being places where permanent works have been instituted in addition to temporary measures.

In the Dindings, the main extension of protected zones has taken place on the Segari Road. Permanent works at Lumut include the completion of draining ravine X, subsoil draining the surroundings of the Reservoir at Ravine V, the commencement of subsoil draining ravine XI and several other small areas.

The control of breeding places is the principal method employed, but a useful adjuvant in the suppression of malaria is the distribution of quinine by the travelling dispensary.

The following table gives a resume of work done:—

	Notices served	*Feet of subsoil drains laid*	*Feet of open masonry drains*	*Feet of earth drains*	*Weels constructed*	*Cubic yards of filling*	*Gallons of oil used*	*Mosquito larvæ examined*
Penang ...	40	19,630	4,856	540	38	500	112,653½	3,268
Province Wellesley ...	48	1,460	874	467	9	2,400	33,715	4,570
Dindings ...	15	2,570	1,009	355	6	600	5,787	1,638
Total ...	103	23,660	6,739	1,362	53	3,500	152,155½	9,476

The expenditure incurred in maintaining previously completed work, the construction of new work, the salaries of the staff, the purchase of materials and tools, upkeep of lorry, purchase of larvicides and implements used in their application has, during 1930, amounted to $216,725.84, this figure consisting of the amount of $95,000 allowed by Estimates plus the sum of $24.717.27 recovered from private owners.

(3) Provision was first made for anti-mosquito work in the Settlement of Malacca in 1926, when a vote of $30,000 was provided. The vote was increased to $33,000 in 1928 and a similar sum was provided in 1930.

Ninety-five mosquito surveys were made in suspected places and the following anopheline larvæ were collected and identified—a. maculatus, a. umbrosus, a. ludlowi, a. kawarri, a. kochi, a. fuliginosus, a. leucosphyrus, a. vagus, a. sinensis and a. barbirostris.

Co-operation between a few of the large rubber estates *e.g.* Asahan, Rim, Rembia, Kemuning, Batang Malaka and Pulau Sebang, with regard to oiling of Crown land bordering these estates has been very useful in reducing the incidence of malaria in the vicinity.

Anti-malarial works undertaken in rural Malacca may be summarized as follows: —

(1) *Permanent Works.*—The permanent work on Ravines 1 and 2 Pulau Sebang-Tampin. This work was carried by the Executive Engineer, Tampin, in consultation with the Health Officer, Tampin, and the Health Officer, Malacca, and to their satisfaction, and was paid from Malacca's Anti-Mosquito Vote. This permanent anti-malarial work should benefit immensely Pulau Sebang and Tampin. Some permanent work was also done in the village itself by this Department. Cost $3,000.

Tebong and Kemuning Villages.—This area was a source of trouble and attention was given to breeding swamps, drains, wells and streams by oiling, filling, closing, clearing and straightening where necessary. In addition, an area of permanent sub-soil drainage was done at Kemuning at a cost of $664.

Jasin.—The Ravine near the Padang which was a frequent source of Maculatus, was opened up and a part has been subsoiled. In addition 928 concrete inverts were made and laid in the drain. This work is being continued and the area is improved immensely from a health point of view. This area is now more picturesque, clean and attractive. Cost $1,500.

Alor Gajah.—Some permanent anti-malarial measures were carried out here.

Rim.—A very large ravine—opened up when the pipeline for Malacca's Water Supply was put down some years ago—and a constant source of trouble, was very adequately drained and subsoiled, under the supervision of the Municipal Engineer and Municipal Health Officer. This work was paid for by the Municipality.

Temporary.—In addition to above permanent works—temporary works, *e.g.* earth drainage etc., were carried out at Pringgit, Durian Daun Hospital, Ujong Pasir, Tanjong Kling, Kemuning, Jasin, Bemban, Merlimau, Alor Gajah, Pulau Sebang and Masjid Tanah.

Extent of Temporary Work done.—Cutting drains—4 miles and 538 yards.

Closing old drains—1 mile and 1,120 yards Pringgit, Tanjong Kling, Kemuning, Jasin and Bemban.

Filling and Sloping—9 acres and 485 sq. yards (Pringgit, Ujong Pasir, Tanjong Kling, Kemuning, Jasin, Bemban and Pulau Sebang).

Clearing undergrowth—67 acres and 1,085 sq. yards (Pringgit, Durian Daun Hospital, Ujong Pasir, Limbongan, Tanjong Kling, Kemuning, Jasin, Bemban, Alor Gajah, Pulau Sebang and Masjid Tanah.

Oiling and Upkeep were carried out at the following places:—Durian Daun Hospital, Pringgit, Limbongan, Ujong Pasir, Tanjong Kling, Alor Gajah, Ayer Panas, Durian Tunggal, Pulau Sebang and Jasin: anti-malarial mixture consumed 8,852 gallons.

(II).—GENERAL SANITATION AND VILLAGE CONSERVANCY

Under this heading are included house to house inspection, village scavenging, control of night-soil, (removal and disposal), control of piggeries, cattlesheds and dairies, inspection of markets, surveys of sites and building plans, sanitary supervision of police stations, rubber estates and factories, control of water supplies and sanitary control of schools.

SINGAPORE

The estimated number of houses in the rural districts is 18,700. Five thousand four hundred and twenty-nine routine house to house inspections were made by district sanitary inspectors. A number of similar inspections in cases of difficulty and complaint were carried out by the rural health officer. The sanitation of government buildings and crown land within the Municipal limits was supervised by the health officer and the routine monthly inspections of all government offices and quarters were carried out by the sanitary inspector (town) and mosquito-collector.

Village scavenging and refuse collection is organised by the health branch; all the villages in the rural areas are served with one or more incinerators according to their need. During the year, three new incinerators were built so that at present 15 incinerators are available for refuse destruction. Thirty-one thousand cubic yards of rubbish were consumed during the year.

Considerable advance has been made during the year in the control of soil pollution. Three hundred and thirty-seven insanitary latrines were demolished and 311 new sanitary latrines were erected by owners of houses. One hundred and forty-nine tube latrines were sunk by the health branch in Bukit Timah, Paya Lebar, Seletar and Geylang districts. All new buildings in village areas and all coffee shops and eating-houses and rubber estates in rural areas have sanitary latrines. The trenching ground at the 8th mile West Coast Road and the septic tanks at Paya Lebar and Bukit Timah have worked very satisfactorily. A new trenching ground has been acquired in Geylang Division and has worked satisfactorily.

Four hundred and seventy five building plans were submitted to the rural health officer for approval; in the majority of the plans submitted, alterations of the sanitary arrangements were made. In certain parts of the rural area, kampongs were so congested that further building on the site had to be refused.

Reports of births and deaths registered at each police station are collected and scrutinised. The police co-operate in gathering children for vaccination and in finding new-born infants for the health sister.

Schools.—Three hundred and ten visits by sanitary inspectors were made to schools. The sanitation of all government and aided schools is satisfactory.

PENANG SETTLEMENT

The greater part of this work is carried out in accordance with Rural Board regulations.

For conservancy, the system followed is the appointment of a reliable man who is authorised to collect the night-soil and dispose of it in the manner prescribed. He is allowed to charge the public a fee not to exceed $1 per month per bucket. This method is in use in all gazetted villages, except at Lumut, where the collected night-soil is removed in specially constructed buckets and thrown into the sea.

The following figures show the work done in general sanitation:—

NUMBER OF INSPECTIONS OF

	Houses	*Latrines*	*Police Stations*	*Schools*	*Copra Sheds*	*Cattle Sheds*	*Goat pens & poultry farm*	*Pigstyes*
Rural Penang ...	21,968	14,840	215	104	56	1,126	294	3,107
Province Wellesley ...	7,290	6,206	300	158	—	463	128	718
Dindings ...	1,682	277	5	14	8	8	50	5
Total ...	30,940	21,323	520	276	64	1,597	472	3,830

In Penang Island, there were 189 prosecutions and the total amount of fines realized was $467/10.

In Province Wellesley, the number of prosecutions were 104 and fines amounted to $495.

In the Dindings, 7 prosecutions were effected; fines were $81/50.

Sanitation on Penang Hill is being enforced on different lines. A water borne sewage system is the method insisted on for permanent buildings, a small septic tank being constructed for each house. Temporary residents, such as workmen engaged in building, are allowed to use pit latrines which are rigorously watched by the sanitary staff. W.C. latrines are insisted on, and it is proposed to commence a conservancy scheme early in 1931.

Everywhere latrine construction has been pursued with increasing energy. Pail latrines are generally used within village limits. Tube latrines are allowed and even recommended wherever suitable; likewise in certain instances, oversea erections. Latrines constructed numbered 1157 in rural Penang Island, 348 in Province Wellesley, and 128 in Dindings.

For refuse disposal, the method generally employed is incineration. In several places, new incinerators of an improved pattern have been constructed.

At Tanjong Tokong, the method of refuse disposal by dumping has been adopted. Low lying land is chosen where pits are dug and these are filled with refuse. Fly breeding is guarded against by treatment with lime and liquid disinfectant. The pit is filled to within one foot from the top.

MALACCA

Certain gazetted village areas are scavenged by coolies under the direct supervision of overseers belonging to the Rural Board, and controlled by the health branch.

There are now 27 gazetted village areas in rural Malacca including one newly gazetted: the Municipal Ordinance and Municipal by-laws are applicable in these areas.

In addition to the rural board coolies, the health officer provides travelling gangs of mandores and coolies, and refuse, empty tins, etc. are collected and either burned or buried. This amounts to 44,806 cubic feet of refuse during the year. All villages are being provided with incinerators.

Considerable advance has been made during the year in the control of soil pollution. Seven thousand two hundred and sixty-four latrines were inspected. Two thousand six hundred and eighty new latrines were constructed and 2,090 reconstructed.

WATER

The water supplies of the cities of Singapore, George Town (Penang) and Malacca, which have lately been greatly extended, are pure and abundant. A number of the surrounding villages are served by the Municipal supplies.

The enhanced Singapore supply is derived from catchment areas in Johore, some thirty miles distant: to reach Singapore Island, the pipes are laid on the Johore Causeway.

There are excellent piped supplies at Balik Pulau, a large village on Penang Island, and at Butterworth and Bukit Mertajam in Province Wellesley, where the amount is to be augmented by impounding additional water at Siraya shortly.

The Bukit Panchor reservoir, supplying the villages of Nibong Tebal and Sungei Bakap in South Province Wellesley, is affected with a growth of algae which, at times, fouls the water. Treatment with lime produced only a transient good effect; a scheme for permanently purifying this water is in hand.

In Lumut, the headquarters of the Dindings, there is a piped supply from hill streams impounded in two catchment reservoirs.

In Labuan, there is a similar supply.

A number of rubber estates have their own piped water systems.

In rural areas, spring water is as a rule plentiful along the foothills. In many such places, the health officers have utilised the anti-malarial subsoil drainage systems to provide the neighbouring villages and kampongs with a water supply, by carrying subsoil water into cemented basins, through which a constant flow is maintained to prevent mosquito breeding.

In kampongs on flat land, the water supply is mostly from shallow earth wells.

(III) School Hygiene

There are in the Colony about 70,000 children of school age.

In Singapore, there are whole time male and female school health officers.

In other Settlements, the work is done as a part time duty by members of the health and medical staffs.

The travelling dispensaries co-operate in this work in rural areas.

The health sister sends sick children and non-vaccinated children for treatment to the travelling dispensary.

The health officer arranges for the dispensary to visit the schools he has inspected, and to treat children.

Quinine is distributed and blood films taken by the assistant medical officer or the dresser in charge.

In the cities where dental defects are serious, more children are now being sent to the dentists.

There is now a dental clinic in Singapore under the charge of the Professor of Dental Surgery, who treats also school children. A Dental Officer has been ordered from home. It is hoped to enlarge this department when this officer arrives.

(Details of school work are given in Appendix *F*, pages 66 to 75).

(IV) Labour Conditions

Estates

Estates are inspected by Government health officers and their subordinates.

There are 96 rubber or coconut estates in Singapore Island, with labour forces of over 25 coolies.

There are also 29 large rubber factories, whose coolies usually are not housed on the premises, but live in villages or in the city, whence they are brought to their work in lorries.

The large rubber estates in Singapore Island have visiting medical officers. The same system obtains on Penang Island where there are 32 rubber, coconut or spice estates, employing over 25 coolies each. There are 209 similar estates in Province Wellesley, including 31 large European owned estates. One group of estates there, known as "Caledonia", has its own resident medical officer. A number of other estates have visiting medical officers. There are six estate hospitals in Province Wellesley, the largest of which serves the "Caledonia" group.

In the Dindings, where there are 38 estates, conditions are similar There are two estate hospitals.

In Malacca, there is a planters' board, known as the Malacca Agricultural Medical Board, which has grouped many of the Malacca estates, and engaged 7 medical officers, 3 Europeans and 4 Chinese, stationed at convenient centres. Some of these officers are doing good preventive work. Thirty-one Malacca estates have small hospitals or sick lines. The Malacca estate medical service, which is paid for by a cess on the planted areas has undoubtedly reduced the death-rate in Malacca estates. The estates under this board total 722, of which 180 exceed 100 acres in area: the annual revenue of the board is about $110,000, and the average number of coolies employed about 24,000.

In all parts of the Straits Settlements, estates which have no hospitals use the Government hospitals. Even estates with hospitals send most of their serious cases into Government hospitals.

Other Labour

The health of the Public Works and other labour forces in rural areas is cared for directly by the medical department.

Offensive trades operate almost entirely in the Municipalities, where they are controlled effectively.

Factories and shops in cities are controlled by the Municipal authorities.

(V) HOUSING AND TOWN PLANNING

The working out of further improvement Schemes is proceeding in the Municipalities of Singapore and Malacca: land is being acquired and laid out.

The sum of ten million dollars, appropriated by Government for the scheme in Singapore, is being spent.

More houses have been erected in the Serangoon district and elsewhere, and an extensive reclamation scheme is being carried out in the Tiong Bahru area of Singapore.

(VI) FOOD IN RELATION TO HEALTH AND DISEASE

The inspection and control of food is carried out by the municipal and Government health officers in their respective areas. There are markets at all centres.

Milk vendors, eating houses, coffee shops, meat shops and aerated water factories are licensed and inspected. Water, milk and other beverages and food stuffs both local and imported are regularly analysed, and action is taken if indicated.

The practice of referring to the health branch applications for licences for coffee shops, eating shops, slaughter houses, markets, milk vendors, etc., has been continued with satisfactory sanitary results.

Inspections as tabulated were carried out in the Northern Settlement—

	Coffee Shops	*Toddy Shops*	*Eating Shops*	*Markets*	*Milk Vendors*	*Slaughter Houses*
Penang ...	1,001	69	607	81	77	174
Province Wellesley	1,656	92	762	205	102	84
Dindings ...	145	20	77	70	—	9
	2,802	181	1,446	356	179	267

In addition, bakeries, fishmongers' shops, grocers' shops and chandu shops were inspected.

In Malacca, similar work was done. Seven villages have good markets. There are eight dairies in the rural area, supplying milk to Malacca town; samples taken were satisfactory.

(*c*) MEASURES TAKEN TO SPREAD THE KNOWLEDGE OF HYGIENE AND SANITATION.

Some of these are detailed in the Maternity and Child Welfare and Social Hygiene reports.

Baby shows have been held in both large and small centres. Health officers and their assistants and health sisters give advice on the preservation of individual health both at clinics and in set lectures. Lantern slides and films are shown, especially in connection with venereal disease, hook-worm and malaria. Pamphlets and posters are issued. Lectures on health are given in all Government schools both English and Vernacular.

The diffusion of knowledge of the principles of hygiene is gradually spreading amongst school children through lectures and by demonstrations and physical examinations carried out in the schools, amongst mothers through the visits of the health sisters and amongst the population generally through the gradually awakening intelligence of those who share in the advance of sanitary progress. The householder who is unaware of the existence of a sanitary inspector is now a rarity and few owners of land are left in ignorance if their holding proves to be a breeding place for mosquitoes.

Sanitary inspectors are taught to advise and encourage rather than to adopt the roll of the policeman. The knowledge of their duties, in which they receive a comprehensive grounding during their course of instruction in Singapore, is supplemented by fortnightly lectures at the office headquarters.

Public health museums have been set up in some of the health offices, both for the instruction of staff and the education of the general public: there are also exhibits and posters at the health centres.

Propaganda work has been undertaken on a permanent basis by the Health Branch.

(*d*) TRAINING OF SANITARY PERSONNEL, 1930.

With the development of rural sanitary work, it became obvious in 1921 that the Government should have a proper staff of sanitary inspectors. A lecture-room, small museum and various offices and a store were fitted out. The collaboration of the Royal Sanitary Institute of London was fortunately obtained; and, in accordance with its practice in suitable tropical centres, the Institute agreed that students locally trained on an approved schedule should be able to obtain the Sanitary Inspector's Certificate of the London Institute after an examination by an approved board of examiners in co-operation with the Government of the Straits Settlements. This facility was much appreciated, for it meant that not only the students destined for Government service would be catered for, but, at the same time, without much expenditure, members of the public might be admitted to the course on payment of the necessary fees. The first session began in May, 1921, and was attended by five selected candidates for Government Service.

The numbers of students rapidly increased until since 1924, it has been necessary to limit the class so as to ensure that all should have adequate training.

In 1926, twenty-six students attended the course, of whom twenty passed. In 1927, thirty-three attended the course, of whom twenty-one passed. In 1928, twenty students attended the course and six others presented themselves for the examination for the Certificate which they had failed to obtain at previous examinations; nineteen passed. In 1930, thirty-four students attended the course and five others presented themselves for the examination for the Certificate which they had failed to obtain at previous examinations: twenty-five passed.

Students have been sent by the Governments of the Straits Settlements, Federated Malay States, Unfederated Malay States, Sarawak, and British North Borneo, and by the Municipalities of Singapore and Malacca.

A few private students have also been admitted.

IV.—PORT HEALTH WORK AND ADMINISTRATION, 1930

A.—SINGAPORE

1.	Number of ports from which vessels arrived	570
2	Names of ports against which quarantine measures were declared during the year— Amoy, Bombay, Bangkok, Benbera, Chittagong, Cebu, Iloilo, Manila, Calcutta, Cochin, East Coast of Siam, Hongkong, Haiphong, Karachi, Madras, Moulmein, Negapatam, Pnompenh, Pondicherry, Rangoon, Saigon, Shanghai, Swatow, Tuticorin, Vizagapatam, South of Bangkok.	
3.	Total tonnage of ships entering the port	15,908,667
4.	Number of ships entering the port	9,130
5.	Ships examined including pilgrim ships and infected ships	1,186
6.	Outgoing pilgrim ships examined	10
7.	Returning pilgrim ships examined	2
8.	Infected ships examined	7
9.	Ships fumigated or disinfected	136
10.	Crew examined	109,816
11.	Passengers examined including Muslim pilgrims and Chinese immigrants	321,201
12.	Outgoing pilgrims examined	3,068
13.	Revenue from charges for fumigation or disinfection of ships and from certificates issued to such ships ...	$10,342
14.	Returning pilgrims examined	2,062
15	Chinese immigrants examined	199,109
16.	Corpses inspected in harbour	58
17.	Water-boats examined in harbour	43
18	Passengers undertakings issued for surveillance ashore	29
19.	Optional certificates issued to ships fumigated or disinfected	143
20.	Bills of health issued	2,922
21.	Permits to import and export corpses issued	50
22.	Revenue from bill of health fees (53 free to warships) ...	$14,370
23.	Revenue from permits to import and export corpses ...	$490
24	Charge for water supplied to passengers at quarantine station recovered from agents)	$2,591·45
25.	Total revenue	$27,793·45
26	Exemption cetificates issued to ships	272
27.	Outgoing pilgrims vaccinated both for cholera and small-pox	634
28.	Deratisation certificates issued	2
29.	Rats trapped and bacteriologically examined:—	

R. Decumanus	*R. Rattus*	*Others*	*Plague Infected*	*Total*
46	442	3	Nil	491

St. JOHN'S QUARANTINE STATION, SINGAPORE

1.	Total passengers admitted during the year	43,659
2.	Greatest number admitted in any one day (22/3/29) ...	2,515
3.	Maximum number in residence on any one day (29/3/29)	2,191
4.	Minimum number in residence on any one day (24/3/29)	26
5.	On 294 days there were none in residence.	
6.	Total sick treated in hospital, *i.e.*, total admissions during the year and patients remaining in hospital on 31/12/28	73
7	Maximum number in hospital on any one day (30/3/29) ...	18
8	Minimum number in hospital on any one day (11/1/29) ...	1
	(*Note.*—On 193 days there were none in hospital).	
9.	Average daily number of sick in hospital	0·2
10.	Total deaths during the year	12
11.	Death-rate per mille in hospital	164
12.	Death-rate per mille amongst passengers admitted ...	·274
13.	Total cases of Cholera admitted	Nil.
14.	Total cases of Plague admitted	5
15.	Total cases of Small-pox admitted	10
16	Number of non-infected ships whose passengers subsequently developed infectious diseases on the Island ...	Nil.
17.	Number of infected ships whose passengers subsequently developed infectious diseases on the Island ...	Nil.
18.	Number of primary vaccinations	9,304
19.	Total re-vaccinations	9,376
20.	Total inoculations with anti-cholera vaccine	50
21.	Total inoculations with anti-meningococcus vaccine ...	1,326
22.	Total number of N.A.B. injections	3
23.	Cases treated as out-door patients (contacts and staff) ...	504
24.	Total births (2 staff)	3
25.	Number of Municipal contacts and patients admitted:—	
	Small-pox contacts	Nil.
	Plague contacts	Nil.
	Cholera contacts	Nil.
	Cerebro-spinal Meningitis	Nil.
26.	Number of Government contacts and patients admitted:—	
	Small-pox contacts	3
27.	Number of Municipal contacts who developed infectious diseases on the Island	Nil.
28.	Number of Government contacts who developed infectious diseases on the Island	Nil.
29.	Corpses sent to station for P. M. examination and burial	1
30.	Number of gallons of water distilled during the year ...	Nil.
31.	Number of gallons of Singapore water pumped up ...	3,278,528

CONDENSED RESUME OF PORT HEALTH WORK, SINGAPORE, FOR 28 YEARS

Year	*Crew and Passengers examined*	*Passengers sent to St. John's Island*	*Visits to Vessels*	*Bills of Health issued*
1903	321,365	21,253	809	1,000
1904	279,297	17,852	712	1,036
1905	323,431	12,109	1,279	1,220
1906	493,021	30,076	1,625	1,674
1907	377,325	25,408	1,226	1,318
1908	303,484	29,356	1,506	1,344
1909	291,625	15,072	1,251	1,299
1910	467,868	35,062	1,920	1,200
1911	538,291	53,961	2,100	1,800
1912	539,677	56,726	1,927	2,145
1913	506,925	56,838	1,818	1,582
1914	402,583	18,193	1,803	1,802
1915	200,978	3,335	821	1,563
1916	426,584	9,738	1,617	1,726
1917	277,442	78,881	694	1,915
1918	284,198	24,182	1,709	2,086
1919	411,921	28,318	2,130	2,160
1920	507,176	31,991	2,023	2,878
1921	511,747	8,950	1,851	2,951
1922	369,072	15,343	1,552	2,720
1923	395,583	7,374	1,360	2,718
1924	408,419	39,053	1,433	2,912
1925	366,671	46,063	1,018	3,204
1926	550,443	78,963	1,650	3,273
1927	643,066	20,169	1,568	3,071
1928	501,009	13,993	1,342	3,345
1929	526,048	84,282	1,578	3,255
1930	431,017	43,659	1,186	2,922
Total	11,620,265	1,016,200	41,505	60,119

B.—PENANG

1 Ports of Clearance on which quarantine restrictions were imposed were:—

Small-pox.—Madras, Bombay, Cochin, Swatow, Moulmein, Berbera, Karachi, Vizagapatam, Calcutta, Negapatam, Rangoon, Hongkong.

Cholera.—Calcutta, Rangoon, Bangkok and other Siamese ports, Bombay, Negapatam, Saigon, Manila, Shanghai, Cebu, Iloilo and Chittagong.

Plague.—Rangoon.

Cerebro-spinal Meningitis.—Shanghai.

2. The following infected ships arrived in Penang during the year:—

Date of arrival	Ship	Port	Infection	Number of cases on board
7-6-30	s.s. "Mentor"	Glasgow *viâ* Jeddah	C.S.M.	

3. Other details are summarised as follows:—

1.	Passengers admitted to Quarantine Station ...	35,778
2.	Greatest number admitted on any one day (22/9/30) ...	1,729
3.	Passengers medically examined	154,326
4.	Crew medically examined	61,799
5.	Maximum number in residence on any one day (16/10/30)	4,090
6.	Minimum number in residence on any one day ...	10
7.	Sick treated in Hospital (Patients remaining on 31/12/29 included)	1,164
8.	Total deaths during the year (of these 20 died within 48 hours)	91
9.	Death-rate among those treated per mille	48·6
10.	Number of births	12
11.	Cases of Cholera admitted	Nil.
12.	Cases of Plague admitted	Nil.
13	Number of vaccinations	33,450
14	Number of anti-cholera inoculations	926
15.	Number of out-patients treated	1,453
16.	Number of anthelmintic treatments	13,478
17.	Corpses examined in harbour	6
18.	Permits to import or export corpses	35
19.	Certificates to accompany hides	12
20.	Water boats examined	16
21.	Revenue in stamp fees	5,419
22.	Number of vessels entering the port (including native craft)	9,798
23.	Tonnage of these vessels	6,991,867
24.	Number of ships examined (ships infected) ...	480
25.	Number of pilgrim proceeding to Jeddah	6
26.	Outgoing pilgrims examined	3,180
27.	Number of pilgrims returning to Jeddah ...	5
28.	Returning pilgrims examined	3,562
29.	Infected ships proceeding to Quarantine	1
30.	Fumigations and disinfections by disinfecting launch ...	18
31.	Number of disinfection certificates issued	2
32.	Passengers undertaking issued	143
33.	Bills of Health issued	1,020
34.	Exemption permits issued	165

CONDENSED RESUME OF PORT HEALTH WORK, PENANG, FOR 27 YEARS

Year	No. of vessels inspected	Bills of Health issued	Passengers and crew units examined	Passengers sent to Quarantine	Number of Small-pox admissions	Number of Cholera admissions	Number of Plague admissions	Vaccinations carried out
1904	748	...	184,691	2,217	16	5	2	...
1905	869	266	214,136	10,406	10	1	Nil	...
1906	675	460	204,988	23,288	16	8	2	6,490
1907	633	...	219,839	17,650	4	24	1	5,625
1908	1,205	...	176,119	21,175	51	9	2	5,691
1909	503	...	161,971	23,058	23	2	1	5,614
1910	526	...	217,967	71,876	62	33	2	12,205
1911	1,144	...	277,151	134,957	109	387	1	63,988
1912*	634	...	287,373	55,493	75	4	4	38,297
1913	818	...	272,473	53,937	11	12	1	37,276
1914	1,040	...	215,067	48,399	171	9	Nil	32,609
1915	405	396	148,622	23,176	3	Nil	Nil	21,562
1916	662	...	213,726	42,736	11	1	Nil	36,806
1917	367	437	203,737	37,595	11	12	Nil	36,808
1918	551	612	173,813	33,481	7	80	Nil	29,536
1919	493	633	210,839	50,733	6	264	Nil	39,941
1920	432	602	207,424	43,733	4	8	Nil	41,230
1921	461	393	197,446	19,653	42	3	Nil	10,377
1922	480	530	197,579	31,247	6	Nil	Nil	26,675
1923	442	646	182,349	24,129	2	9	Nil	23,359
1924	461	703	214,936	28,701	Nil	151	Nil	25,779
1925	417	754	203,204	44,984	8	47	Nil	42,514
1926	885	753	282,530	85,607	5	91	Nil	77,879
1927	3,201	733	367,183	88,849	11	41	Nil	83,675
1928	1,821	898	257,507	43,273	11	Nil	Nil	40,354
1929	532	1,058	262,476	58,013	1	Nil	Nil	54,554
1930	480	1,020	216,125	35,778	Nil	Nil	Nil	33,450

* New Quarantine Station opened and old Quarantine Station converted into Leper Camp.

V.—KING EDWARD VII COLLEGE OF MEDICINE, SINGAPORE

Dr. G. V. Allen, Bacteriologist, Institute for Medical Research, Kuala Lumpur, confirmed in his post as Principal on 14th March, 1930.

(2) Mr. B. A. R. Gater was appointed Professor of Biology *vice* Captain K. B. Williamson retired, with effect from 18th August, 1930.

Students.—There was an entry of twenty-eight medical students and nine dental students during the year 1930. Twenty-six students left the College during the same period; of these, eight completed the course and received the Diploma of L.M.S., Singapore; three left in order to continue their studies at Edinburgh or Hongkong; eleven ceased to study medicine, and two died.

There were one hundred and fourteen students at the College at the end of the year, including nine dental students. Nationalities of students are—Chinese 46; Indians and Ceylonese 45; Eurasians 11; Malays 11; Japanese 1.

Clinical Teaching.—Every senior student must spend at least one year actually carrying out resident intern duties in hospital. These students have definite cases allotted to them, and are responsible for carrying out the investigations, both clinical and laboratory, keeping case records, methods of examination and treatment, assisting at operations, and after treatment, and giving anæsthetics under supervision.

Medicine.—A ward at the large free hospital, Tan Tock Seng, has been converted into laboratories, lecture hall, X-ray room. An X-ray plant, presented by Mr. Chee Swee Cheng, was installed and will prove of very great benefit to the hospital as well as for teaching students. In the two adjoining wards, are kept 80 picked clinical cases, chosen from the 1,000 beds of the hospital, to be studied and examined by the students, who also assist in carrying out treatment there. A children's ward was opened during the year and it was possible to do part of the teaching of the diseases of children, but the number of patients was too small to give a full course.

Surgery.—Similar arrangements are in force for the teaching of Clinical Surgery. The institution of the students clinical laboratory, and consultations with physicians and the following of cases to the postmortem room, has taught students that medicine, surgery, bacteriology, pathology and bio-chemistry, are all correlated parts of the healing art.

The course in radiology was revised and consists now of a series of twenty lecture-demonstrations held once a week and extending over two terms. In addition, the students are posted in pairs to the Radiology Department for whole-time work for two weeks.

Midwifery and Gynæcology.—The teaching of midwifery and gynæcology was carried out as in previous years. The facilities for teaching midwifery to students are excellent in Singapore and the average number of cases attended by each student in 1930 was fifty. The new hospital at Kandang Kerbau is now in course of construction and the proposed centralization will further improve the facilities for giving a practical training in midwifery and gynæcology.

The teaching of gynæcology is more difficult, as in most cases vaginal examination by students is only possible when cases are under an anæsthetic.

Pathology.—The opportunities for studying clinical pathology in the mortuaries are unrivalled, and much practical forensic medicine is studied at the same time.

Public Health.—Appropriate demonstrations are given in connection with the prevention of the entry and spread of infectious disease, by sea and land, vaccination, anti-mosquito measures, rural, estate and school sanitation, health education and propaganda, factories, town-planning, food, water supply, meteorology, and infant welfare work. Some of the demonstrations are made possible by the collaboration of municipal officers and estate managers.

Research.—In addition to the usual routine teaching by intern professors, a considerable amount of research has been undertaken by certain members of the staff.

The nutrition research commenced by Professor J. L. Rosedale in 1927 has been continued. Professor B. A. R. Gater continued the research on the larval thrombidiid mites in connection with tropical typhus and tsutsugamushi on which he had been engaged in the Institute for Medical Research, Federated Malay States. Preparations for the systematic study of helminths of medical importance were made.

An investigation on pneumonia was commenced in 1930 in which Dr. N. V. McKenna (Acting Professor of Medicine), Dr. J. C. Tull (Government Pathologist) and Dr. N. K. Sen (Assistant to the Professor of Bacteriology) co-operated. The object of the investigation is to ascertain, if possible, the factors responsible for the high death rate in hospital cases which is at present 50 per cent. By the end of the year careful clinical records had been obtained of 125 cases together with a bacteriological examination, including the typing of the pneumococci isolated. Dr. J. C. Tull carried post-mortem examinations on the cases that died.

In 214 cases of suspected enteric fever comparative agglutination tests were carried out using "O" and "H" emulsions. The investigation into the value of prophylactic dysentery enterovaccine was continued. Gonococcal vaccine was prepared and issued to the Social Hygiene Clinics in Singapore, Penang and Malacca.

(The annual report of the Principal of the College of Medicine is being published separately).

VI.—MATERNITY AND CHILD WELFARE ACTIVITIES IN THE STRAITS SETTLEMENTS

I.—MATERNITY HOSPITALS

There are Government Maternity Hospitals in both Singapore and Penang, and maternity wards in several of the Government District Hospitals, in the Church of England Mission Hospitals at Singapore and Malacca, and in the Kwong Wai Shiu Hospital, Singapore, a charity supported by the Cantonese Community.

Return of women admitted to and delivered in maternity institutions in the Straits Settlements, 1930—

	Admitted	*Delivered*
1. Maternity Wards, General Hospital, Singapore	1,063	1,010
2. Free Maternity Hospital, Kandang Kerbau, Singapore	2,099	1,882
3. Maternity Ward, St. Andrew's Mission Hospital, Singapore ...	295	285
4. Maternity Ward, Kwong Wai Shiu Hospital, Singapore	387	368
5. (i) King Edward VII Maternity Hospital, Penang	1,469	1,304
(ii) Maternity Wards in Province Wellesley and Lumut Hospitals ...	107	105
6. Maternity Ward, St. David's Mission Hospital, Malacca	326	326
7. Maternity Wards in Malacca and other District Hospitals ...	155	129
Total ...	5,901	5,409

II.—TRAINING AND WORK OF MIDWIVES

Numbers of midwives are trained at the Government Hospitals; a few are trained at the mission hospitals.

Class A midwives comprise women with sufficient English education to undergo a 12 months' training and examination similar to the C.M.B. at Home: they receive a Diploma. Nurses with British diplomas are registered in this class also.

Class B midwives comprise Asiatics of lower education, who undergo a practical training given in Malay, for from six to nine months, and pass a practical examination.

Class C consists of women who have been registered, though unable to pass an examination, because they were in regular practice before the passing of the Midwives Ordinance.

The number of registered midwives in the Colony is:—

Settlement	*Singapore*	*Penang*	*Malacca*
Class A	135	71	7
Class B	321	176	24
Class C	63	72	12
Total ...	519	319	43

The number of births in the Colony in 1930 was 44,703.

Of some 35,000 births in Singapore and Penang Islands, nearly three quarters were attended by trained midwives.

III.—INFANT AND CHILD WELFARE SERVICES

These are conducted by the Municipalities of Singapore, Penang and Malacca, within their boundaries, by the Singapore Child Welfare Society, and, in rural areas, by Government.

A.—Municipalities

The Singapore Municipality has a Lady Medical Officer and 7 qualified sisters. Four of these, supervise the work of local registered midwives. The other 3 are in charge of infant welfare clinics. There are 14 educated Asiatic health visitors, with the local C.M.B. and mostly with certain amount of general training, working under these sisters. Two of these visitors attended poor maternity cases; there is also a panel of medical men who attend such cases and receive fees from the Municipality.

Penang Municipality employs two European sisters and eight locally qualified midwives.

Malacca Municipality employs two health visitors under the supervision of a Government European health sister.

B.—The Singapore Child Welfare Society

This Society was incorporated in 1923 under the presidency of Lady Guillemard. Lady Clementi was pleased to accept the presidency on her arrival in the Colony. The object of the Society is to assist the welfare of mothers, expectant and actual, and of infants and children up to school age (6 years). To avoid overlapping, it leaves the care of infants up to one year as far as possible to the Singapore municipal service.

The committee comprises a nominee of His Excellency the Governor, nominees of various local associations, and members elected by the Society.

It is not connected with any religious body: it is supported by voluntary contributions and an annual grant from Government of $2,000.

Over $50,000 was raised for it by the Chinese community in 1925.

The Society maintains two centres, each staffed by a trained matron and two Chinese health visitors. Much home visiting is done and milk is distributed to poor families. A baby show, open to all nationalities, is held annually. Over $700 was given in prizes last year. The Society manages a children's playground. A creche was opened in July of 1930.

C.—Government Health Branch

Four Government health sisters, with the assistance of eight health nurses, conduct clinics, and do home visiting in the rural areas of the three Settlements of the Colony.

They are supervised by health officers.

The clinics are held at various centres on stated days and hours.

The educational and preventive aspect of infant welfare work is kept in view; mothers are instructed in the colloquial.

There is a regular weekly itinerary of home visits in connection with the routes of the motor travelling dispensaries.

Treatment of the newly born is carried on in their homes, but other patients are referred to the travelling dispensary, to which many infants are also sent for vaccination.

Roadside advice is also given to mothers and children who collect at points on the scheduled routes.

Baby shows are held in rural districts and lectures are given to women school teachers and to inhabitants of villages and kampongs.

C Class midwives are supervised and instructed.

D.—Combined return shewing visits paid to homes and attendances at Welfare Clinics in 1930

	Visits to homes		*Attendances at Clinics*	
	—		—	
MUNICIPALITIES :—				
Singapore ...	84,339		25,353	
Penang ...	48,757		—	
Malacca ...	18,970	152,066	4,205	29,558
Singapore Child Welfare Society ...		32,617		24,327
GOVERNMENT :—				
Singapore ...	35,699		9,363	
Penang ...	40,620		29,955	
Malacca ...	13,217	89,536	6,247	45,565
Grand Total ...		274,219		99,450

IV.—ASSOCIATED ACTIVITIES

Women's and Children's Dispensaries are conducted by Government in Singapore and Penang and by Missions in Singapore and Malacca. The dispensaries are staffed by lady medical officers.

The returns for 1930 are:—

	New patients	*Repetitions*	*Total*
Women's and Children's Dispensary, Kandang Kerbau, Singapore (9,108 of the 15,042 were children)	15,042	17,158	32,200
Women's and Children's Dispensary, Penang	7,072	14,382	21,454
St. Andrew's Mission Dispensary, Singapore	3,782	8,677	12,459
St. David's Mission Dispensary, Malacca	2,915	2,525	5,440
Total ...	28,811	42,742	71,553

Motor Travelling Dispensaries.—There were 101,219 attendances in 1930 of whom a considerable proportion were women and children.

Children's Wards.—There are wards specially for children at three hospitals in Singapore, under the charge of lady medical officers: many of the children are admitted in a dying condition.

The returns for 1930 are:—

	Admitted	*Discharged*	*Died*
General Hospital, Singapore	994	514	438
Kandang Kerbau Hospital, Singapore ...	335	235	100
St. Andrew's Mission Hospital, Singapore	409	216	193
Total ...	1,738	965	731

The St. David's Mission Hospital, Malacca, admitted 947 women and children to a women's and children's ward in 1930. Of these 822 were discharged and 125 died.

There are wards for women at every hospital in the Straits Settlements

VII.—HOSPITALS, DISPENSARIES AND VENEREAL CLINICS

I.—Total inpatients treated and mortality in all Hospitals of the Colony for the past five years:—

YEAR	Number treated 1st and 2nd Class wards	Number of deaths 1st and 2nd Class wards	Number treated 3rd Class wards	Number of deaths 3rd Class wards	TOTAL 1ST, 2ND AND 3RD CLASS WARDS		Percentage of deaths 1st and 2nd Class wards	Percentage of deaths 3rd Class wards	Percentage of deaths on total treated
					Cases	Deaths			
1926	7,614	387	60,400	5,346	68,014	5,733	5·09	8·85	8·42
1927	7,192	407	64,483	6,108	71,675	6,515	5·66	9·45	9·06
1928	6,256	410	59,947	5,588	66,203	5,998	6·71	9·33	9·06
1929	7,933	507	61,377	4,817	69,310	5,324	6·39	7·84	7·68
1930	(*a*)6,911	(*b*)662	67,728	5,425	74,639	6,087	(*c*)9·58	8·01	8·15

(*a*) Of this 994 were children treated in the Children's Ward of the General Hospital, Singapore.
(*b*) 438 of the 994 children admitted died; omitting this number, the percentage of deaths in the 1st and 2nd class wards would be 3. 78·
(*c*) *See* footnote (*b*).

II.—The total number of inpatients treated and the total deaths in the hospitals of the Colony for some of the important diseases are shown in the sub-joined table with the corresponding figures for the preceding three years.

Diseases	1927		1928		1929		1930	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Malarial Fevers	15,426	949	13,181	932	11,036	784	13,870(*a*)	1,019
Dysenteries	1,561	511	1,418	501	1,167	306	1,102(*b*)	326
Diarrhœa and Enteritis	1,412	158	856	123	963	143	1,389	191
Beri-beri	1,786	361	1,499	236	1,322	175	1,449	239
Pulmonary Tuberculosis	1,941	952	1,866	920	2,080	910	2,230	966
Enteric Fever	302	132	347	145	214	78	241	89
Ulcers	3,266	5	5,392	5	3,994	12	4,554	30
Venereal Diseases	4,983	95	4,402	151	4,445	110	5,041	168
Ankylostomiasis	4,012	102	3,037	84	2,827	63	2,886	55

(*a*)—Dysentery Amœbic 505 cases ... 159 deaths
,, Bacillary 383 cases ... 131 deaths
,, Unclassified 214 cases ... 36 deaths

(*b*)—Of the total cases 364 were infants. Of the total deaths 124 were infants

III.—The following terminal causes of deaths were noted in 673 fatal malarial cases:—

	Penang Hospitals	*Malacca Hospitals*	*Tan Tock Seng Hospital*	*General Hospital*	*Total*
Cardiac Failure ...	126	45	93	61	323
Nephritis ...	3	—	—	7	10
Failure of liver function ...	—	4	—	—	4
Cerebral malaria and cases of Coma ...	31	—	—	60	91
Cirrhosis of the liver	—	—	2	2	4
Inter current Lobar pneumonia and Broncho-pneumonia	3	67	—	16	86
Blackwater fever ...	—	—	—	3	3
Dysentery and Enteritis ...	1	8	4	25	38
Hyperpyrexia ...	27	5	—	—	32
Cachexia ...	10	19	9	6	44
Beri-beri ...	—	—	5	28	33
Other pulmonary conditions ...	—	—	—	5	5
				Total ...	673

IV.—The approximate daily cost of diets per head in the Hospitals of the Colony in 1930 was:—

		$	*cts*
First Class	Full diet	1	99
First Class	Half ,, ...	1	24
First Class	Milk ,, ...		28
Second Class	Full ,, ...	1	58½
Second Class	Half ,, ...	1	24
Second Class	Milk ,, ...		28
Third Class (Chinese) ...	Full ,, ...		18½
Third Class (Chinese) ...	Half ,, ...		19½
Third Class (Chinese) ...	Milk ,, ...		11
Third Class (Malays and Tamils)	Full ,, ...		24½
Third Class (Malays and Tamils)	Half ,, ...		19½
Third Class (Malays and Tamils)	Milk ,, ...		11
Third Class (Sikhs)	Full ,, ...		43¾
Third Class (Sikhs)	Milk ,, ...		16¼
Third Class (Bengali Hindus) ...	Full ,, ...		36¼
Third Class (Bengali Hindus) ...	Milk ,, ...		16¼

V.—OUT-DOOR DISPENSARIES

Year	Total patients	Total attendances
1930	281,008	734,126
1929	254,219	643,450
1928	190,749	333,106
1927	166,428	313,264
1926	159,903	312,090
1925	154,420	273,841
1924	96,284	167,934
1923	73,343	139,656

The number of out-patients treated for Yaws was 6,076 against 9,990 in the previous year.

The attendance at the Women's and Children's Dispensary, Kandang Kerbau, Singapore, were 32,200 compared with 31,231. In the Women's and Children's Dispensary, Penang, the attendances were 14,832 as against 15,948 in the previous year.

The attendances at the motor travelling dispensary in Province Wellesley were 26,892 and in Penang 33,775 against 30,484 and 31,217 in 1929.

In Singapore, the attendances at the travelling dispensary were 19,891 as against 14,504, and in Malacca 20,661 as against 19,661 in 1929.

VI.—BUILDINGS

General Hospital, Penang.—Reconstruction of and extensive additions to this hospital have been started and are making good progress.

General Hospital, Malacca.—The rebuilding of this hospital has been started.

VIII.—PRISONS AND MENTAL HOSPITAL

A.—PRISONS

(*a*) SINGAPORE PRISON

The general sanitary condition of the Prisons has been good.

There has been no outbreak of a serious nature and the general health has been satisfactory, except for a minor incidence of Diarrhoea and Dysentery towards the end of the year, resulting in 38 Bowel cases and 4 Deaths.

The daily ratio of sick to Prison population remained steady being 1 : 35·7 for the 1st Quarter, 1 : 35·9 for the 2nd Quarter, 1 : 35·5 for the 3rd Quarter and 1 : 37·5 for the 4th Quarter which is satisfactory.

The Cells on the 1st floor of the Native Prisons Hospital have been converted into a large airy Tuberculosis Ward.

2,769 Blood tests were taken during the year, of which 740 were Positive to Syphilitic infection (of these 90 were re-examinations).

308 Prisoners completed at least one course of treatment, and 92 were undergoing treatment at the close of the year.

Out of the 2,769 Blood tests mentioned above, 499 were Vagrants of whom 125 were found positive, but only 3 could complete a course of treatment, the remainder being repatriated after one or two injections.

Admissions to Prison Hospital numbered 1,247, including 27 Europeans. This with 39 remaining from the previous year gives a total of 1,286 treated The daily average sick was 44.87 against 33.9 in 1928, and 40.56 in 1929.

Principal Diseases:—

Pyrexia of unknown origin	119
Debility	112
Diarrhoea	58
Tinea Tricho-Phytina	48
Venereal Disease	45
Abscess	43
Bronchitis	42
Ulcers	37
Ankylostomiasis	33
Scabies	32
Eczema	31
Eye Affections	30
Bacillary Dysentery	29
Wounds	27
Malarial Fevers	24
Asthma	23
Pulmonary Tuberculosis	19
Dyspepsia	19
Anaemia	17
Neuritis	16
Intestinal Colic	15
Valvular Dis. Aortic	14
Senility	13

Deaths.—There were 25 Deaths in the Prison Hospital given a death rate of 1.94 as against a death rate of 2.3 in 1928 and 1.69 in 1929.

Causes of Death:—

Pulmonary Tuberculosis	9
Bacillary Dysentery	7
Aortitis & Aortic incompetence	3
Aortitic Aneurysm	1
Arterio sclerosis & senility	1
Visceral Syphilis with terminal Colitis	1
Tabes Mesentrica with Tuberculosis of Peritoneum and Gut	1
Acute Amoebic & Bacillary Dysentery	1
Vesicle Calculus with Hydronephrosis & Terminal Lobar Pneumonia	1

The figures of the different classes of Prisoners are shewn in the following tables:—

	Criminal	*Civil*	*Vagrant*
(*a*) Total Population in prison	11,278	6,839	738
(*b*) Average daily number in Prison	1,296	210	93
(*c*) Total treated in Prison Hospital	1,041	63	143
(*d*) Percentage of (*c*) to (*a*)	·92	·09	19·36
(*e*) Total deaths in Hospital	20	2	3

Dr. H. W. Furnivall was the Medical Officer in charge of the Prisons throughout the year, with Dr. Tham Ying Khow as Assistant Medical Officer.

Mr. A. Danker was Hospital Assistant in charge throughout the year.

(*b*) Penang Prison

1. *Admissions*.—

(*a*) There were 12 cases remaining in Hospital at the beginning of the year. 322 cases were admitted during the year making a total of 334 cases treated in all, as compared with 338 cases in 1930.

(*b*) The daily average number of sick for the year was 12·18, as compared with 14.67 for the previous year.

2. *Diseases*.—The principal diseases treated amongst the in-patients were as follows:—

Malaria	7
Tuberculosis	7
Venereal Diseases	25
Diseases of the Respiratory system	27
Bowel disorders	36
Ankylostomiasis	2
Skin Diseases	26
Injuries	21

3. *Deaths.*—There were 8 deaths during the year, with a death rate of 2·09 as compared with 8 deaths and a death-rate of 2·03 of previous year:—

1. Visceral Syphilis ...	1	4. Pulmonary Tuberculosis	2
2. Asphyxia from hanging (suicide) ...	1	5. Tubercular Adenitis ...	1
3. Enteritis	1	6. Chronic Amoebic Dysentery	1

4. *Out-patients.*—4,091 cases were treated as Out-patients during the year, as compared with 4,228 cases in the previous year. The principal diseases treated among the out-patients were:—

Veneral Diseases ...	126	Bowel disorders ...	123
Fever (not specified) ...	656	Skin Diseases ...	423
Opium Habit ...	393	Ulcers	290
Diseases of the Respiratory System	295	Malaria	Nil
		Other Diseases ...	1,785

5. *Wassermann.*—

(*a*) 550 specimens of blood were taken for Wassermann Test as compared with 841 in 1929.

(*b*) 282 gave Positive results as against 216 in 1929.

(*c*) 984 Intravenous Injections of N. A. B. were given as against 810 in 1929.

(*d*) 923 Bismuth Preparation were given as against 831 in 1929.

6. *Hookworm.*—

(*a*) 1,164 specimens of stool were examined for Ova of Intestinal parasites, etc., as compared with 990 the previous year.

(*b*) 394 were found positive to Ova as compared with 465 the previous year.

(*c*) 394 cases received treatment for Hookworm and Ascariasis during the year (271 for Ankylostomiasis and 123 for Ascariasis).

7. *Judicial Hanging.*—There were three cases of Judicial Hanging during the year.

8. *Health.*—The Sanitary condition of Prison and the Health of Prison Staff and Prisoners were satisfactory throughout the year.

(*c*) MALACCA PRISON

There were 60 admissions to the Prison Hospital with no death, including 14 cases of Malaria. The daily number of sick was 16.

The daily average number of inmates were as follows:—

Prisoners	57·94
Remands	15·46
Vagrants	14·56

There were no executions during the year.

B.—SINGAPORE MENTAL HOSPITAL

There remained on 31st December, 1929, seven hundred and ninety-four males and two hundred and eighty-five females. Two hundred and eighty nine males and one hundred and ten females were admitted during 1930. The total treated was one thousand four hundred and seventy-eight persons

2. Of the admissions seven males and six females had been previously inmates of Singapore Mental Hospital.

3. Of the total treated sixty-seven males and twenty-nine females were discharged as recovered, twenty-four males and seventeen females as

improved, fifteen males and eleven females as not improved, and two males as not insane. Nine males absconded. Eighty-five males and thirty-two females died.

4. There remained on 31st December, 1930, eight hundred and eighty-one males and three hundred and six females.

5. The average daily number was 854·68 males and 286·41 females.

6. The maximum and minimum daily numbers respectively were one thousand one hundred and eighty-seven and one thousand and seventy-five

7. The nationalities of the admissions were:—

	Males	*Females*
British	5	—
Other Europeans	1	1
Eurasians	4	1
Chinese	170	85
Tamils	66	13
Malays and Allied races	28	9
Others	15	1

8. The physical condition of those admitted was:—

	Males	*Females*
Good	106	31
Fair	125	52
Impaired	48	15
Greatly impaired	10	12

9. Twenty-three patients died within a month of admission.

10. Apart from various physical diseases, mental stressess, malaria, alcohol, syphilis, previous attacks, and insane heredity, known to be predisposing or exciting causes of insanity, it is noticeable that in many instances the patients themselves attributed their attacks to "fever" and "alcohol".

11. The recovery rate for the year was 24·06.

12. Criminal population—there remained on 31st December, 1929:—

	Males	*Females*
(*a*) Criminal lunatics	32	2
(*b*) Lunatic criminals	9	0
During 1930—*Criminal lunatics*:—		
(*a*) Number admitted	7	0
(*b*) Number who recovered and were discharged from the hospital ...	2	0
(*c*) Number who were not insane on admission and were discharged from the hospital	2	0
(*d*) Number who died	2	0
Lunatic Criminals:—		
(*a*) Number admitted	7	0
(*b*) Number whose sentence expired ...	5	0
(*c*) Number who recovered and were discharged from the hospital ...	1	0
(*d*) Number who were not insane on admission and were discharged from the hospital	0	0
(*e*) Number who died	1	0
There remained on 31st December, 1930:—		
(*a*) Criminal lunatics	33	2
(*b*) Lunatic criminals	9	0

13. *Mortality.*—Records of the death-rate are available since 1888: this year's death rate based on the average daily number is the lowest recorded—10·2%. Chief causes of death were dysentery, pneumonia, pulmonary tuberculosis, malaria and general paralysis of the insane: these five diseases accounted for nearly one half of the total deaths.

14. *Industries.*—Seven thousand three hundred and forty-four yards of cotton cloth were woven by the male patients for use in the institution. Thirty-three thousand and fifty-five pounds of vegetables were cultivated in the hospital grounds and supplied to the hospital kitchens. Gardening and other work outside the wards gave employment to a large number of patients. Clearing and levelling has been done to a great extent. Two thousand eight hundred and seventy-five cocoanuts were harvested.

15. The admissions for 1930 showed an increase of 76 as compared with the year 1929.

16. Revenue was $19,121/63.

17. Dr. E. R. STONE, Medical Superintendent, proceeded to England on leave on 26th June, 1930. Dr. DAVID RUSSELL, Assistant Medical Superintendent, acted in his place. Drs. G. B. LEICESTER and LEE KEK SOON remained as Assistant Medical Officers throughout the year.

IX.—SCIENTIFIC (Appendices)

A.—Report on Leper Settlements, Singapore, (page 40).

B.—Report on Pulau Jerejak Leper Settlement, and the Female Leper Settlement, Penang, (page 41).

C.—Report on Pathological Branch, Straits Settlements, (page 44).

D.—Report on General Hospital, Singapore, (page 46).

E.—Report on the treatment of Opium Habit, (page 65).

F.—Report on Schools, Straits Settlements, (page 66).

G.—Report on Social Hygiene Branch, Straits Settlements, (page 76).

H.—Report on League of Nations Eastern Bureau, Singapore. (Page 82).

J. GRAY,
Ag. Principal Civil Medical Officer,
Straits Settlements.

APPENDIX "A"

LEPER SETTLEMENT, SINGAPORE

Annual Report for the year 1930

1. *Male leper Settlement*—

Remained on 31st December, 1929	28
Admitted during 1930	138
	166

Banished during 1930 (to China)	19
Died during 1930	7
Absconded during 1930	2
Transferred to Pulau Jerejak	95
Remaining on 31st December, 1930	43
	166

Immediate cases of death—

Pulmonary tuberculosis	2
Leprosy	5

2. *Female Leper Settlement*—

Remained on 31st December, 1929	65
Admitted during 1930	21
	86

Discharged during 1930	8
Died during 1930	4
Absconded during 1930	Nil.
Remaining on 31st December, 1930	74
	86

Immediate cases of death—

Pulmonary tuberculosis	1
Leprosy	3

Return of Injections—

	Male	*Female*
Hydnocarpus with .5% Iodine	2,012	6,776
Alepol 1% with ·5% Carbolic	5,446	1,753
Avenyl	27	—
Hydnocarpus Wightiana (Ethyl Esters) with ·5% Iodine	—	4
Hydnocarpus (Mixed Esters) with ·5% Iodine	—	4

Treatment.—During the year the lepers received injections of Alepol 1% in .5% Carbolic and Hydnocarpus in .5% Iodine administered subcutaneously. The commencing dose being 1 cc. increasing by ½ cc. up to 5 cc.

Avenyl a mercury preparation for the treatment of leprosy complicated by Syphilis was given a trial on selected cases. It is as yet too early to assess the results. The "Plancha" method of intradermal injections of

Hydnocarpus Esters with 0·5% Iodine has just been begun. This method has given successful results in the Phillipines and India, but the oil requires careful standardisation and at present the first sample of locally prepared oil is being tried. The dosage is the same as in giving subcutaneous injections.

The few lepers suffering from Pulmonary Tuberculosis receive Dextro-Calcium injections only.

A generous diet with healthy surroundings, occupation and recreation, assists greatly in maintaining the general condition of patients.

The morale of the male lepers has greatly increased since the occupation ot the new camp in September, 1930.

The female lepers occupy themselves by cleaning their respective wards, sewing, cooking their own food and gardening, whilst the males in addition cut grass, paint, do a little carpentering as well as cooking their own food.

General.—Several of the Hydnocarpus Wightiana tress in the Female Settlement are now bearing and in the near future should be able to supply enough oil to treat all the cases in Malaya.

Results—

Male leper Settlement—

Definitely Improved	6
Slight	7
Stationary	12

The remaining being recent arrivals.

Female leper Settlement—

Apparently cured	8
Definitely improved	18
Slightly improved	14
Stationary	15
Retrogressing	5

The remaining being recent arrivals.

During the year Assistant Medical Officers N. Ahin, A. Samat and P. E. Pereira took charge in turn of both the Settlements.

APPENDIX "B"

PULAU JEREJAK SETTLEMENT

Annual Report for the year 1930

1. Number remaining on 31st December, 1929 ...		847
Admitted during the year		211
Total treated ...		1,058
Died	125	
Absconded	53	
Discharged-relieved 4 cured Nil. ...	4	
Transferred	16	198
Remaining on 31st December, 1930		860
Death rate	11.81	

2. *Administration.*—The Chief Medical Officer and Senior Health Officer, Penang, were visiting Medical Officers throughout the year.

The Resident Staff consisted at the beginning of the year:—

One Medical Superintendent.

One Lady Superintendent.

Nine Dressers.

This Staff was later increased by an Assistant Medical Officer and five more dressers. The late Dr. WHEATLEY was in charge till his death on 16th February, 1930.

3. Dr. S. M. BABOO took charge of the Island on March 18th, 1930, and was transferred to Penang on November 21st, 1930.

Dr. R. B. MACGREGOR was on special duty at the Island on two occasions, first from July 18th to 22nd and the second time from 5th November to 21st December residing on both occasions at the Island.

On the second occasion he left the Island on November 25th and continued to visit the Island till December 21st, 1930.

Dr. R. K. PONNIAH took charge of the Island on 25th November, 1930.

Dr. TAN HOR KEE reported for duty on 23rd September, 1930.

Anti-malarial work was carried out at all the camps, throughout the year.

Meteorology.—The total rainfall for the year was 2,170 m.m. compared with 2,054 for 1929. The highest daily rainfall was 117 m.m. registered on 1st April, 1930. A shortage of water was experienced owing to a prolonged drought and water boats were requisitioned from Penang. The total quantity of water brought from Penang was 9,836 tons.

5. *Camp E.*—The number of huts is 54 and the number of inmates 143. Each hut accommodates 2 or 3 inmates.

The grounds have been divided into small gardens, one for each hut, which are tended by the inmates.

Vegetable gardening is encouraged and the vacant land behind the huts is being cultivated with a variety of vegetables.

Dr. TAN HOR KEE is resident in Camp E.

6. *Old Settlement.*—There are 14 wards in the Settlement with 384 inmates.

Most of the inmates in this settlement are advanced cases and decrepits.

The Lay Superintendent is resident there.

7. *Eurasian Ward.*—There are 16 inmates in this ward. Two of them are Straits born Chinese and one a Fillippino.

8. *New Settlement.*—This consists of 7 wards with 315 inmates. Two Medical Superintendent resides at the new Settlement.

The total number of admissions for the year was 211 compared with 218 for 1929 and the daily average was 860.90 compared with 839.25 for 1929.

The highest number of inmates on one day was 884 on 7th July, 1930.

9. *Treatment.*—Each leper receives treatment in a form suitable to the stage of his disease.

The advanced lepers take Hydnocarpus Wightiana oil in capsules, starting with a dose of 5 minins increasing up to toleration.

Selected cases are given injection of the oil intranodularly and alepol intravenously.

The total number of injections given was 5,871.

Four cases were discharged as relieved, none cured.

10. *Boy Scouts.*—The total strength for the year was 14, under the direction of Dresser Ooi Peng Guan. They now have their own fife and drum band.

11. *Brass Band.*—This is under the direction of a Filippino inmate and is greatly improved. It performs frequently in the Band Stand at the Eurasian Ward.

12. *Piggery.*—The piggery was handed over to a syndicate of lepers in November, 1930, in return for a 1,000 katties of pork to be supplied to the Settlement within a year, after which the syndicate will become the exclusive owner of the piggery. So far 400 katties of pork have been supplied.

13. *Visitors.*—Fourteen visits were paid by the Visiting Committee appointed by the Government to visit the Settlement for the year 1930.

In addition, His Excellency the Governor visited once, the Honourable Resident Councillor three times and the Honourable Principal Civil Medical Officer three times.

Dr. Mitchell, Chief Health Officer of South Africa, and Dr. Muir of the Calcutta School of Tropical Medicine amongst others, visited the Settlement and expressed their appreciation.

14. *Opium Supply.*—In accordance with instructions from the Government the supply of opium ration has been steadily reduced during the year. At end of the year, the total number smoking opium was as follows:—

1 Hoon per diem	87
1 Hoons per diem	89
3 Hoons per diem	119
	295

All opium smokers are now concentrated in the Old Settlement.

15. *Leper Activities.*—Some lepers who are able-bodied are employed by the Government as coolies, attendants, toties, dhobies, barbers, etc. Some are vegetable gardeners working on their own account and others work at the piggeries. Lepers who are not earning money and who do not receive opium are given an allowance of one dollar a month as pocket money.

ANNUAL REPORT OF FEMALE LEPER SETTLEMENT, JELUTONG, PENANG FOR 1930

Remained 31st December, 1929	61
Admitted	18
Total treated	79
Discharged	4
Transferred	3
Absconded	10
Died	8
Remained 31st December, 1930	54
Average Daily No. of Patients	52.4

Treatment.—Improvement of general health.—good food—exercise—cleanliness—attention to the regular action of the bowels.

Selected.—A 3% solution of Alepol is injected once a week by the Subcutaneous and intra muscular routes commencing with 1 c.c. and increasing by 1 c.c. to a maximum dose of 10 c.c.; after a fortnight's rest Alepol in 1% solution is given intravenously once a week commencing with 1 c.c. and increasing by 1 c.c. up to a maximum dose of 10 c.c.

The majority of cases show improvement with this treatment.

Hydnocarpus Wightiana oil is taken by mouth by some cases. It is also rubbed into the skin by some.

Local.—Intra-dermal injections into the leprous patches with the Alepol solution were given.

The raised patches are painted with Trichloracetic acid once a week.

Results.—Four cases have been discharged during the year as cured (Bacteriologically Negative). The majority of the others show varying grades of improvement.

APPENDIX "C"

REPORT ON THE PATHOLOGICAL BRANCH, STRAITS SETTLEMENTS

by Dr. J. C. Tull, *Government Pathologist, Singapore*

I.—SINGAPORE

In the middle of July, the Government Bacteriologist assumed duty. From this time, this Branch has been divided into a Pathological and a Bacteriological section, with the Government Pathologist in control.

The Pathological Section.—As in previous years, the routine clinical laboratory work from the prison has been done by this section. Medico-legal exhibits have been examined: and the general pathology of the Settlement carried out.

The total number of specimens examined was 6,223, including 5,499 sera for the complement fixation test for syphilis, 546 pieces of tissue for histological diagnosis and 122 police exhibits. Two thousand four hundred and twenty autopsies were performed, including 827 done for the Coroner.

The following tables show the main causes of death, exclusive of Coroner's cases, as ascertained by post-mortem examination.

Staff.—The staff has worked faithfully throughout the year. For the first 5 months, Dr. J. R. Jacob was chief assistant: since then Dr. C. Subrahmanyam has taken his place. The Government Pathologist has been in charge throughout the year.

The Bacteriological Section

by Dr. H. O. Hopkins, *Government Bacterilogist, Singapore*

This branch was opened on August 27th, 1930. The work of this section consisted chiefly of—

(1) Cultural examinations for the isolation and identification of pathogenic micro-organisms from routine specimens submitted by the General Hospital, Tan Tock Seng Hospital, Prison and Social Hygiene Clinics, Singapore.

(2) Serological examinations, *e.g.* routine Widal tests. The total number of specimens examined was 601, as follows:—

Examinations performed (August 27th to December 31st).

Cultural examinations of stools	223
Positive for *B. typhosus*	10
Positive for *B. dysenteriæ* (Flexner)	47
Positive for *B. dysenteriæ* (Shiga)	1
Positive for *B. alkaligenes*	2
Positive for Salmonella group	10
Cultural examinations of urine	108
Positive for *B. typhosus*	2
Positive for *B. coli*	37
Positive for Salmonella group	3
Positive for B. alkaligenes	1
Positive for streptocci (non-hæmolytic)	2
Positive for Staphylococcus aureus	3
Cultural examinations of blood	15
Positive for *B. typhosus*	2
Positive for Staphylococcus aureus	2
Cultural examinations of pus	16
Positive for Staphylococcus aureus	8
Positive for pneumococcus	3
Positive for Streptococcus (hæmolytic)	2
Positive for Streptococcus (non-hæmolytic)	2
Cultural examinations from the throat	29
Positive for *B. diphtheriæ*	2
Cultural examinations from other sources	12
Smears from miscellaneous sources	30
Widal agglutination tests	160
Other examinations	8
Total examinations performed	601

Staff.—Dr. J. A. COWAN was in charge of this section from August 27th, 1930 to September 29th, 1930. Dr. H. O. HOPKINS took up his substantive appointment as Government Bacteriologist, Singapore, on September 30th, 1930, and has been in charge of this section since that date.

APPENDIX "D"

GENERAL HOSPITAL, SINGAPORE

Dr. J. Gray, Chief Medical Officer, was absent on leave from April to November, 1930, and during that period the Hospital was administered by Drs. J. S. Webster and R. B. MacGregor.

Work done.—A comparative table for the years 1926 to 1930 is as follows: —

Year	No. of patients treated in 1st and 2nd Class Wards	Died	Percentage	No. of patients treated in Children's Ward	Died	Percentage	No. of patients treated in 3rd Class Ward	Died	Percentage
1926	3,100	216	6·96	Included in 1st and 2nd Class Wards			9,901	839	8·45
1927	3,775	280	7·42				10,842	1,037	9·57
1928	4,137	308	7·44				11,246	881	7·83
1929	4,727	389	8·23				11,974	944	7·88
1930	4,201	129	3·07	994	438	44·06	13,959	1,045	7·48

The admissions and deaths in the Children's Ward are shown separately for the first time this year. The reason for this being done is that the death rate in this ward is so very high, that with increasing numbers of patients and deaths, it has had the effect of rendering the inclusive death rate for the 1st and 2nd Class Wards useless for purposes of comparison. The very high death rate in the Children's Ward is accounted for by the fact that many babies are brought in by the parents in a moribund condition with the object of saving the parents the trouble of arranging funerals. It is, of course, impossible to refuse admission to such cases, and the result is that the death rate (44%) is appallingly high, and it is not a fair index of the quality of the work done in this Ward.

Chief Diseases.—The chief diseases treated in the General Hospital are stated below and compared with previous years: —

Diseases	*1930*	*1929*	*1928*	*1927*	*1926*
Malaria	2,567	1,821	2,094	1,967	1,691
Enteric Fever ...	154	132	244	228	147
Tuberculosis ...	712	621	545	481	388
Dysentery Amœbic ...	143	107	161	165	104
Dysentery Bacillary ...	119	62	50	53	149
Dysentery Unclassified ...	27	25	23	27	23
Syphilis and Gonorrhœa	1,097	783	889	783	862
Beri-beri	428	308	346	237	190
Pneumonia, Lobar ...	227	264	286	319	237
Pneumonia, Broncho ...	233	147	100	104	80
Pneumonia, Unclassified	34	17	7	28	—
Ankylostomiasis ...	1,112	700	239	317	569

Malaria.—The return of diseases above, shows considerable increase in the number of cases of malaria, compared with last year, and there is also a corresponding increase in the deaths from malaria, namely, 213 compared with 184 in 1929. I cannot advance any explanation for this increase in malaria.

Amongst the causes of deaths from malaria, the most important out of the 213 cases are:—

Cardiac Failure	61	cases
Cerebral Malaria and cases of Coma	60	,,
Nephritis and Failure of Kidney Function ...	7	,,
Blackwater Fever	3	,,
Inter Current Lobar Pneumonia and Broncho Pneumonia	16	,,
Beri-beri with Cardiac Failure Complicating Malaria	28	,,
Cirrhosis of the Liver Complicating Malaria ...	2	,,

Ankylostomiasis.—The increase in the number of cases of Ankylostomiasis is probably more apparent than real, and is due to the tendency to adopt as a diagnosis in doubtful cases some condition which can easily be demonstrated by laboratory methods.

Syphilis.—There are 1,097 cases of syphilis, showing an increase of 413 cases over last year. This is due probably to increasing appreciation of the treatment and also increasing willingness on the part of the medical officers to diagnose diseases as being due to syphilis rather than labelling them with a pathological name descriptive of the lesion instead of the cause.

Diarrhœa in Infants under 2 years.—107 cases were treated with 75 deaths.

Maternity Wards, General Hospital.—

Admitted	1,063	Delivered	1,010

This shows an increase over last year, when the admissions numbered 950. A detailed report of the Maternity Wards in Singapore will be submitted to you separately.

Dental Clinic.—The most important addition to the work of the General Hospital during 1930 was the establishment of a Dental Clinic. This was opened during April, under the charge of Mr. E. K. TRATMAN, Professor of Dental Surgery in the College of Medicine. This clinic is housed in the 3rd class section of the Hospital, and its work has progressed steadily since the beginning of the year.

The total number of patients treated this year is 662 and the total number of attendances 1,586. Details of the work done are shown in Professor TRATMAN's report (Appendix *IV*).

Surgery.—The work of the surgical side of the Hospital shows an increase over that done last year, the increase being proportionate to the number of patients in hospital.

The total number of operations is 2,238, compared with 1,877, in 1929.

Professor K. BLACK was on leave for 8 months during the year. During that time, his work was carried on by Professor B. M. JOHNS (for general surgery) and by Dr. R. WALKINGSHAW (for ophthalmic work.)

Details of surgical operations are shown on the annual return of operations (Appendix *II*).

The work in the Medical Wards.—The Senior Physician, Professor R. B. HAWES, was on leave from April till the end of the year. During this time, his work was done by Dr. N. V. MCKENNA.

The report of the physicians' department together with those of the clinical laboratory and the routine laboratory are included in Appendices *I*, *V* and *VI*. They call for no special comment.

Radiological Department.—The report of the Radiological Department is attached (Appendix *III*).

The points of special interest in it are Dr. WEBSTER's remraks on the radiological appearance of Tuberculosis of the lungs in this country and also his comments on results of motor-car accidents.

APPENDIX *I*

Medical Report for the year ending 31st December, 1930.

Medical Staff.—

Professor R. B. Hawes ...	Senior Physician.
Dr. V. H. Norris ...	Physician
Dr. C. E. Smith ...	House Physician to the 1st and 2nd Class Wards.
Dr. E. S. Monteiro ...	House Physicians to the 3rd Class Male Wards.
Dr. B. H. Sheares ...	
Dr. R. G. Gunatilaka ...	House Physician to the 2nd, 3rd and Free Female Wards.

Professor R. B. Hawes went on leave to Europe in April and Dr. N. V. McKenna acted for him.

In December, Drs. Sheares and Monteiro went on local leave. The vacancies were filled by Dr. S. L. Oehlers of Tan Tock Seng's Hospital and Dr. S. W. Ponnappa from the Surgical Division. The health of the staff throughout the year has been good.

Clinical Laboratory.—This department is well equipped and there are many facilities for making Chemical, Biochemical and Bacteriological examinations. Again I have to thank the Departments of Bacteriology and Biology for the valuable assistance throughout the year.

Routine Laboratory.—The system of changing the junior dresser in this laboratory every six months is, perhaps, a good one. Good work has been done throughout the year.

After Treatment.—This continues to be a success and it is now a habit with all 3rd class male patients to ask for instructions on their discharge from hospital.

The total number of patients—Medical, Surgical, Maternity—treated during the year amounted to 19,154. Of these, 18,333 were new admissions. The number of deaths were 1,612.

Beri-beri.—428 cases were treated; of these 107 died—a death rate of 25%. In 1929, 308 cases were treated with 63 deaths. The increase is accounted for by the marked general depression of the markets of the town and the consequent increase in the number of the poor.

Lobar Pneumonia.—227 cases treated. 120 deaths.

Death rate 52·42%. The high death rate in pneumonia in Singapore is due to many factors of which the following two are the chief:—

1. The patients come to hospital too late—the majority arrive on the 5th day of the disease.

2. The disease appears to affect the poor labourer who is more often then not exposed to all sorts of weather, lives in most unhygienic surroundings and is underfed.

Enteric Fever.—

154 cases treated with 56 deaths.

Death rate 36·36%.

The same remarks that apply to lobar pneumonia are true of Enteric Fever.

Pulmonary Tuberculosis.—

593 cases treated with 186 deaths.

Death rate 31%.

The death rate in this affection would probably have been at least 75% were it not for the fact that a large number of patients were—

1. Sent back to their home lands.
2. Transferred to Tan Tock Seng's Hospital.
3. Discharged from hospital to die at home.

Metallic Poisons—Arsenic and Lead.—

20 cases treated. 2 deaths.
Death rate 10%.

The cases of Arsenical poisoning resulted from injections of arsenical preparations in the course of treatment for syphilis. A few patients had received only ·3G of Novarseno billon, yet signs and symptoms of poisoning developed. As it is not possible to tell who has an idiosyncracy for arsenic, all patients now receive a dose of a concentrated solution of sugar one hour before the injection of N.A.B. or other similar arsenical preparations. The sugar increases the resistance of the liver cells for arsenic. Since the introduction of the above measure, there has not been any accident following injections.

Lead.—Printing offices provide the cases of lead poisoning. All were mild. Poisoning from the absorption of lead contained in cosmetic preparations has not occurred during the year.

APPENDIX *II*

RETURN OF OPERATIONS

From 1st January to 31st December, 1930

Total Operations 2,238

Deaths 34

Pathological condition and nature of operation	*Total No. of Cases*	*Cured*	*Relieved*	*Died*
Amputations—				
Forearm or hand ...	...	...	...	...
Foot or leg	4	4	...	...
Fingers	5	5	...	...
Toes	2	2	...	...
Arm	...	...	...	...
Re-Amputations ...	...	...	...	...
Operations on Muscles, Tendons and Ligaments—				
Tenotomy	2	2	...	...
Suturing divided tendon ...	4	4	...	...
Stitching wound, face, etc.	...	...	...	...
Removal of Ganglion ...	1	1	...	...
Plastic of Sterno-Mastiod	...	...	...	...
Operation for Torticollis	...	...	...	...
Operation on Heart and Blood Vessels—				
Peri Arterial Sympathectomy	...	...	...	...
Suturing of Politeal Aneurysm	...	...	...	...
Ligature of Arteries ...	...	...	...	...
Ligaturing Vessels ...	...	...	...	...
Excision of Varicose Veins of Legs	3	3	...	...
Obliteration of Aneurysm	...	...	...	...
Injection of Varicose Veins	8	8	...	...
Aneurism of External Carotid	...	...	...	...
Stab-wound of Heart sutured	...	...	...	...
Angioma	12	12	...	...

Pathological condition and nature of operation	*Total No. of Cases*	*Cured*	*Relieved*	*Died*
—	—	—	—	—
OPERATIONS OF LYMPHATIC GLANDS—				
Excision of Lymphatic Glands	20	20	...	...
Lymphatic ostomy ...	...	...	...	...
Disection Glands Neck ...	3	3	...	...
Incision of Glands ...	1	1	...	...
REMOVAL OF FOREIGN BODY—				
Hand	5	5	...	...
Foot	1	1	...	...
Back	...	...	...	...
Nose	1	1	...	...
Neck	...	...	...	...
Arm	1	1	...	...
Duodenum	1	1	...	...
Thigh	2	2	...	...
Unspecified	1	1	...	...
Rectum	...	...	...	...
Neck	...	...	...	...
Ear	...	...	...	...
Jaw	...	...	...	...
Guinea Worm ...	1	1	...	...
OPERATIONS ON BONES—				
Sequestrectomy ...	13	13	...	...
Plasting Fractures ...	11	10	...	1
Bone Grafting ...	4	4	...	...
Plaster of Paries ...	14	14	...	...
Osteomylitis ...	6	6	...	...
Setting Fractures ...	58	58	...	...
Wiring or Pegging Fractures	25	25	...	...
Osteotomy	...	...	...	...
Excision of Coccyx ...	1	1	...	...
Excision of Astragalus ...	...	...	...	...
Removal of Wire from Fracture	1	1	...	...
Osteomyelitis of Spine-Exploratory ...	...	...	...	...
Excision Part of Fibuls ...	...	...	...	...
Exostosis Femur ...	...	...	...	...
Removal of Plate ...	...	...	...	...
Cyst of Bone	...	...	...	...
Excision of Scaphoid ...	...	...	...	...
Hallux Valgus ...	...	...	...	...
OPERATION OF JOINTS—				
Arthrotomy	5	5	...	...
Arthrectomy ...	3	3	...	...
Aspiration	1	1	...	...
Reduction of Dislocation	3	3	...	...
Excision of Semi-Lunar Cartilage	5	5	...	...
Mobilisation of Joint under Anæsth	28	28	...	...
Excision Metacarpus Phal. Joint	2	2	...	...
Hammer Toe ...	...	...	...	...

Pathological condition and nature of operation	*Total No. of Cases*	*Cured*	*Relieved*	*Died*
Operation for Dislocated Hip	...	...	...	...
Clairmon's Operation (Shoulder)	...	...	...	...
Plaster Case to Hip Joint	...	...	...	...
Irrigation	1	1	...	...
Manipulation	12	12	...	...
Injection of Airinto Knee Joint	3	3	...	...
OPERATIONS ON SKULL—				
Trephining	3	3	...	...
Hydrocephalus	...	...	...	...
Decompression	1	1	...	...
Nail removed from brain	1	0	...	1
Basal Puncture	3	3	...	...
Lipiodol Injection	2	2	...	...
Exploration of brain	1	1	...	...
OPERATIONS ON EAR—				
Radical Mastoid Operations	10	9	...	1
Plastic	...	...	...	...
Removal of Papilloma	...	...	...	...
Furunculosis	1	1	...	...
Incision of Typanic Membrane	2	2	...	...
Osteoma of Meatus	...	...	...	...
OPERATIONS ON LIPS, MOUTHS AND SALIVARY GLANDS—				
Repair of Hare Lips	15	15	...	...
Repair of Cleft Plate	1	1	...	...
Excision of Jaw	...	...	...	...
Excision of Parotid Tumours	...	...	...	...
Eneucleation of Tonsils and Removal Adenoids	378	378	...	...
Diathermy, Cancer of Tongue, Tonsil, and Cancer of Nose, Sarcoma, Cheek	...	...	...	...
Extraction of Teeth	97	97	...	...
Removal of Portion of Growth for Examination	1	1	...	...
Peritonsilla Abscess	8	8	...	...
Radius Introduced	1	1	...	...
Alveola Abscess	2	2	...	...
Tumour Jaw	...	...	...	...
Polypus of Cheek	1	1	...	...
Excision Ulcer of Tongue	...	...	...	...
Hæmorrhage from Tonsils	...	...	...	...
Fixing Dental Splints	1	1	...	...
Salivary Caculus	2	2	...	...
Uvulectom	2	2	...	1

Pathological condition and nature of operation	*Total No. of Cases*	*Cured*	*Relieved*	*Died*
Operations on Oesophagus—				
Oesophagoscopy ...	12	12	...	...
Removal of Foreign Body	4	4	...	...
Delatation of Oesophagus	...	...	...	...
Operations of Trachea—				
Tracheotomy ...	1	1	...	...
Hemithyroidectomy ...	...	...	...	...
Brochoscopy for Foreign Body	2	2	...	...
Thyrodectomy ...	1	1	...	...
Operations of Noses and Sinuses—				
Turbinectomy ...	22	22	...	...
Submucous Resection ...	15	15	...	...
Opening Maxillary Antrum	8	8	...	...
Nasal Polypus ...	18	18	...	...
Fracture-Resected ...	...	...	...	...
Fracture-Moulded ...	1	1	...	...
Curettage of Ethmoid ...	...	...	...	...
Plastic of Nose ...	2	2	...	...
Nasal (not specified) ...	1	1	...	...
Frontal Sinusitis ...	6	6	...	...
Cauterisation of Nose ...	5	5	...	...
Rhinosporidium ...	...	...	...	...
Insertion of Radium ...	4	4	...	...
Operations on Eyes—				
Removal of Foreign Body	...	...	...	...
For Pterygium ...	8	8	...	...
Plastic for Entropion ...	1	1	...	...
Excision Lachrymal Sac	4	4	...	...
Iredectomy ...	5	5	...	...
Extraction of Cataract ...	4	4	...	...
Needling of Cataract ...	...	...	...	...
Evisceration of Eye ...	4	4	...	...
Enucleation of Eye ...	3	3	..	...
Symblepharon ...	...	...	...	...
Trephining Cornea ...	1	1	...	...
Excision of Lachrymal Duct	1	1	...	...
Plastic on Socket ...	...	...	...	...
Removal of Pupomata ...	...	...	...	...
Incision of Ectropion ...	1	1	...	...
Expression of Lids for Trachema	6	6	...	...
Excision Growth of Eye	1	1	...	...
Division of Anterior Aynechise	...	...	...	...
Incision Abscess of Eyelid	3	3	...	...
Exenteration of Orbit ...	1	1	...	...
Plaster Eyelids ...	...	...	...	...
Muscle Advancement for Squint	...	...	...	...

Pathological condition and nature of operation	*Total No. of Cases*	*Cured*	*Relieved*	*Died*
—	—	—	—	—
OPERATIONS ON EYES—*Continued.*—				
Cauterisation Staphyloma	2	2	...	...
Conjunctival Tumour ...	4	4	...	...
Mules Operation ...	...	...	...	...
Penquecula	...	...	...	...
Toilet of Eye ...	5	5	...	...
Glaucoma	...	...	...	...
Corneal Ulcer ...	2	2	....	...
Hoodeleon	...	...	...	...
OPERATIONS ON BREASTS—				
Complete Amputation ...	7	6	...	1
Excision of Breast ...	5	5	...	...
Incision of Breast ...	13	13	...	...
OPERATIONS ON THORAX—				
Resection Rib for Empyema	5	5	...	...
Extraction of Bullet from Lung	...	...	...	...
Decompression Mediast Thori	...	...	...	...
Empyema Drained ...	1	1	...	...
Aspiration of Chest ...	2	2	...	...
OPERATIONS OF HERNIA—				
Medical Cure of Hernia ...	48	48	...	...
For Strangulated Hernia	11	11	...	...
Ventral Hernia ...	...	...	...	...
Femoral Hernia ...	1	1	...	...
ABDOMINAL OPERATIONS—				
Peritoneal Abscess Drained	2	2	...	...
General Peritonitis ...	5	5	...	...
Exploratory Laparotomy	22	20	...	2
Castrotomy	1	1	...	...
Castrectomy, partial ...	1	1	...	...
Sub-Phoenic Abscess ...	1	1	...	...
Perforated Duodenal Gastric Ulcer ...	4	4	...	...
Castro-Jejunostomy ...	7	7	...	...
Splenectomy ...	4	4	...	...
Liver Abscess, Laparotomy and Drainage ...	4	3	...	1
Cholecystostomy ...	5	4	...	1
Cholecystectomy ...	11	8	...	3
Choledocotomy ...	3	2	...	1
Acute Intestinal Obstruction	7	6	...	1
Intussusception ...	3	3	...	...
Acute and Chronic Appendectomy ...	128	124	...	4
Colostomy	12	12	...	...
Plication of Colon ...	...	...	...	...
Stab Wound Abdomen ...	7	4	...	3
Gunshot Wound Abdomen	...	...	...	...
Laparatomy for Imperforate Anus	...	...	...	...

Pathological condition and nature of operation	*Total No. of Cases*	*Cured*	*Relieved*	*Died*
ABDOMINAL OPERATIONS—*Contd.*—				
Perforation Intestine Typhoid	7	4	...	3
Resection of Intestine	5	4	...	1
Amœbic Abscess—Manson Operation	...	...	...	...
Removal of Mesenteric Cyst	2	2	...	...
Laparatomy, Adhesions	1	1	...	...
Ruptured Liver	...	...	...	...
Pancreatic Cyst	...	...	...	...
Calcified Glands	...	...	...	...
Retro-Peritoneal Hæmorrhage	...	...	...	...
Suture of Ruptured Intestine	2	2	...	...
Excision Gastric Ulcer	...	...	...	...
Colostomy Closed	...	...	...	...
Gastrostomy	...	...	...	...
Abscess Abdominal Wall	...	...	...	...
Repair Abdominal Wall	1	1	...	...
Pyloroplaty (Rawsted's Operation)	1	1	...	...
Aspiration of Ascites	1	1	...	...
Abdominal Sinus	...	...	..	...
Enterostomy	3	3	...	...
Tubercular Ulcer (Abdominal)	...	...	...	...
Amœbic Abscess—Aspiration	1	1	...	...
Pyloroplasty	1	1	...	...
Cholecystenterostomy	2	2	...	...
Iuostomy	2	2	...	...
OPERATIONS ON RECTUS AND ANUS—				
Excision of Hæmorrhoids	50	50	...	...
Partial Excision of Rectus	...	...	...	...
Ischio-Rectal Abscess	10	10	...	...
Rectal Polypus	...	...	...	...
Sigmoidoscopy	11	11	...	...
Imperforate Anus	1	1	...	...
Dilatation of Anal Canal	7	7	...	...
Anal Fissure	11	11	...	...
Fistula in Ano	12	12	...	...
Excision of Ulcer	1	1	...	...
Examination under Anæsthetic	2	2	...	...
Condensation of Ulcers	...	...	...	...
Extra Peritoneal Abscess opened and drained	1	1	...	...
Anal Abscess	3	3	...	...
Rectal Cyst	...	...	...	...
Recto Vesical Fistula	...	...	...	...
Carcinoma of Rectum	2	2	...	...
Prolapse—Cauterisation	...	...	...	...
Anal Closure	1	1	...	...

Pathological condition and nature of operation	*Total No. of Cases*	*Cured*	*Relieved*	*Died*
OPERATIONS ON KIDNEYS, URETERS AND BLADDERS—				
External Urethrothomy	5	5	...	...
Dilatation Urethra Stricture	14	14	...	...
Litholoppaxy ..	5	5	...	...
Suprapubic Cystotomy for Stone	8	7	...	1
Cystoscopy	103	103	...	...
Cystoscopy Diathermy...	4	4	...	...
Nephrectomy ...	8	8	...	...
Nephro-Lithotomy ...	...	...	...	...
Peri-Nephrac Abscess ...	2	2	...	...
Urethroscopy ...	1	1	...	...
Suprapubic Cystotomy ...	2	2	...	...
Pyonephrosis ...	1	1	...	...
Nephropexy	1	1	...	...
Decapsulation of Kidney	...	...	...	...
Urethrotomy ...	4	4	...	...
Hypospadias	2	2	...	...
Lymphongioplasty ...	...	...	...	...
Transplantation of Ureters into Loin	...	...	...	...
Ruptured Bladder ...	...	...	...	...
Hydronephrosis ...	2	2	...	...
Cystoscopy and Pyelsgraphy	37	37	...	...
OPERATIONS ON THE MALE GENERATIVE ORGANS—				
Funiculitis	2	2	...	...
Amputation on Penis (Cancer)	...	...	...	...
Pastic of Penis ...	2	2	...	...
Hydrocele, Radical Cure	21	21	...	...
Varicocele	3	3	...	...
Orchidectomy ...	1	1	...	...
Ruptured Urethra ...	2	2	...	...
Suturing Scrotum ...	...	...	...	...
Prostatectomy ...	1	1	...	...
Circumcision ...	18	18	...	...
Excision Lymphœdema Scrotum	...	...	...	...
Undecended Testicle ...	3	3	...	...
Prostatic Abscess ...	2	2	...	...
Diathermy of Prostate ...	...	...	...	...
Diathermy of Chancriod	...	...	...	...
Nephropexy ...	..	...	...	...
Dilatation of Stricture ...	...	...	...	...
Urethroscopy ...	2	2	...	...
Peri-Urethral Abscess ...	3	3	...	...
Hæmatocele ...	...	...	...	...
Penile Tumour ...	...	...	...	...
Medication, Urethra ...	...	...	...	...
Diathermy Urethra ...	...	...	...	...

Pathological condition and nature of operation	*Total No. of Cases*	*Cured*	*Relieved*	*Died*
OPERATIONS ON THE FEMALE GENERATIVE ORGANS—				
Ovariotomy ...	7	7	...	...
Salpingectomy ...	10	9	...	1
Laparotomy and Hysteropexy or Round Ligament Operation ...	2	2	...	...
Hysterectomy ...	15	14	...	1
Perineorrhaphy ...	4	4	...	...
Amputation Uterine Cervix	12	12	...	...
Hymenectomy ...	3	3	...	...
Examination under Anæsthetic ...	17	17	...	...
Vesico-Gavinal Fistula ...	3	3	...	...
Curettage	93	93	...	...
Colporraphy ...	8	8	...	...
Ovarian Cyst ...	6	6	...	...
Dermoid Ovary ...	...	...	...	...
Myonectomy ...	2	2	...	...
Trachelorraphy ...	...	...	...	...
Salpingastomy ...	1	1	...	...
Caesarian Section ...	8	7	...	1
Ventral Suspension ...	12	12	...	...
Ruptured Ectopic Gestation	10	9	...	1
Recto-Vaginal Fistula ...	3	3	...	...
Hæmotometria ...	1	1	...	...
Marsupialisation of Uterus	...	...	...	...
Insertion Radium, Cervix	8	8	...	...
Excision Papillomata, Perinem	4	4	...	...
Induction of Labour ...	9	9	...	...
Urethral Carunele ...	...	...	...	...
Sterilisation ...	1	1	...	..
Cervical Polypus ...	1	1	...	..
Manual removal of Placenta	1	1	...	...
OPERATIONS ON CYSTS—				
Sabacecus	13	13	...	...
Boher's Cyst ...	...	...	...	...
Bonula	...	...	...	...
Dental Cyst	1	1	...	...
OPERATION FOR ABSCESS—				
Incision	107	107	...	...
Psoa Abscess Aspirited ...	6	6	...	...
Abscess Hip-Joint ...	2	2	...	...
OPERATIONS ON NERVES—				
Maningo-Myelocele ...	1	6	...	1
Alcoholic Injections for Nerves	3	3	...	...
Nerve Anastomosis ...	...	...	...	...
Stretching Sciatic Nerves	...	...	...	...
Excision Neuroma of Stump	2	2	...	...
Nerve Suture ...	1	1	...	...
Spina Biorida ...	1	...	...	1
Cerebral Tumour ...	1	...	...	1

Pathological condition and nature of operation	*Total No. of Cases*	*Cured*	*Relieved*	*Died*
Operations on the Spine, Cord and Meninges—				
Lumbar Puncture ...	8	8	...	...
Bone Graft of Spine ...	2	2	...	...
Laminectomy ...	1	1	...	...
Plaster Case to Spine ...	...	...	...	...
Operations on the Skin and Subcutaneous Tissues—				
Skin Grafting ...	18	18	...	...
Removal of Nail ...	15	15	...	...
Removal of Papillomata	...	...	...	...
Aspiration Chest ...	...	...	...	...
Hemi Thyroidectomy ...	...	...	...	...
Removal Bunion ...	...	...	...	...
Suturing Wounds ...	20	20	...	...
Curattage	...	...	...	...
Stab Wound	...	...	...	...
Exploration Incision, Extraction of Bullet ...	1	1	...	...
Palmar Fasciotomy ...	...	...	...	...
Hæmatoma Drained ...	1	1	...	...
Cellulitis—Incised ...	34	34	...	..
Carbuncle	9	9	...	...
Keloid	4	4	...	...
Diathermy	...	...	...	...
Sinuses Scraped ...	2	2	...	...
Resuture of Wounds ...	16	16	...	...
Urinary Extravasation ...	...	...	...	...
Excision of Ulcer ...	1	1	...	...
Tumour (unspecified) ...	2	2	...	...
Osteoma	...	...	...	...
Condylomata ...	...	...	...	...
Excision of Scar ...	1	1	...	...
Whitlows	5	5	...	...
Toilet of Gunshot—Wound	3	3	...	...
Plastic Operation of Face	2	2	...	...
Tumours—				
Fibroma	...	...	...	...
Lipoma	5	5	...	...
Naevus	...	...	...	...
Tumour of Scalp (unspecified-removed) ...	...	...	...	...
Rodent Ulcer Removed	...	...	...	...
Ganglion Removed ...	...	...	...	...
Tumour Vulva ...	...	...	...	...
Bartholin Cyst ...	2	2	...	...
Vaginal Stricture ...	...	...	...	...
Cyst (unspecified) ...	6	6	...	...
Angeioma	...	...	...	...
Growth (unspecified) ...	...	...	...	...
Cystic Lygroma ..	...	...	...	...
Sarcoma	7	6	...	1
Myeloma	...	...	..	...
Carcinoma	1	1	...	...
Dermoid	3	3	...	...
Tumour unspecified ...	3	3	...	...
Insertion of Radium ...	1	1	...	...
Removal of Radium ...	1	1	...	...
Burns	1	1	...	...

The equipment of the clinic is being rapidly completed, and arrangements have been made for the future extensions.

Month 1930		No. of 1st attendances	No. of other attendances	Filling	Scalings	Dressing	Extractions	Other treatments
April	...	31	87	45	20	14	125	5
May	...	70	142	118	30	53	160	1
June	...	68	126	74	34	36	200	12
July	...	87	227	190	46	123	250	4
August	...	89	187	136	49	65	327	26
September	...	104	208	85	43	84	342	25
October	...	83	205	125	45	76	263	49
November	...	77	257	100	38	130	112	50
*December	...	55	147	57	19	87	131	10
Total	...	662	1,586	930	324	668	1,910	182

* The clinic was closed from December 14th to 31st, inclusive, owing to the absence on leave of the staff.

E. K. TRATMAN,
Professor of Dental Surgery.

APPENDIX *V.*

RETURN OF WORK DONE AT THE CLINICAL LABORATORY, GENERAL HOSPITAL, SINGAPORE, FOR THE YEAR ENDING 31ST DECEMBER, 1930.

Blood films.—

(*a*) For Malaria—			
B. T. ...	... parasites present ...	31	
S. T. ...	,, ,, ...	102	
Q. ...	,, ,, ...	2	
B. T. & S. T. ...	,, ,, ...	4	
B. T. & S. T. & Q.	,, ,, ...	1	
B. T. & Q. ...	,, ,, ...	1	
No	,, ,, ...	537	
			678
(*b*) For Filaria—			
Positive	...	11	
Negative	...	22	
			33
(*c*) For Stippling	...		36
(*d*) For Leukæmia—			
Myelogenous	...	6	
Lymphatic	...	1	
			7
	Carried forward ...		754

APPENDIX *V.—Continued.*

RETURN OF WORK DONE AT THE CLINICAL LABORATORY, GENERAL HOSPITAL, SINGAPORE, FOR THE YEAR ENDING 31ST DECEMBER, 1930.—*Contd.*

Brought forward ...		754
Blood.—		
Urea ...		141
Sugar ...		444
Total blood cell count ...		1,740
Differential blood cell count ...		316
Hæmoglobin—sahli ...		582
Icterus Index ...		7
Fouchet ...		15
Van den Bergh ...		25
Calcium ...		1
Coagulation time ...		1
Bleeding time ...		1
Platelet count ...		3
Matching ...		87
Grouping ...		15
Reticulocyte count ...		3
Gastric Analysis ...		566
Vomit.—		
For blood positive ...		1
Urine.—		
For Chemical Examination ...	1,660	
Microscopical Examination ...	1,625	
Urea ...	88	
Quinine ...	27	
		3,400
Stools.—		
Ankylostome Ova found ...	4	
Ankylostome Ova + ...	—	
Round worm Ova found ...	1	
Tapeworm Ova found ...	1	
Active Amœbæ found ...	11	
Red blood cells found ...	1	
White blood cells found ...	2	
White and Red cells found ...	45	
No Ovo, amœbæ or blood cells ...	25	
Cholera vibrio—negative ...	4	
Trichomonas ...	1	
Ankylostoma + Tape Worm ova found ...	1	
Occult blood ...	27	
Worms ...	—	
Round + Ankylostome found ...	1	
Tape worm (Sajinata) ...	2	
No worms ...	24	
		150
Carried forward ...		8,252

The equipment of the clinic is being rapidly completed, and arrangements have been made for the future extensions.

Month 1930	*No. of 1st attendances*	*No. of other attendances*	*Filling*	*Scalings*	*Dressing*	*Extractions*	*Other treatments*
April ...	31	87	45	20	14	125	5
May ...	70	142	118	30	53	160	1
June ...	68	126	74	34	36	200	12
July ...	87	227	190	46	123	250	4
August ...	89	187	136	49	65	327	26
September ...	104	208	85	43	84	342	25
October ...	83	205	125	45	76	263	49
November ...	77	257	100	38	130	112	50
*December ...	55	147	57	19	87	131	10
Total ...	662	1,586	930	324	668	1,910	182

* The clinic was closed from December 14th to 31st, inclusive, owing to the absence on leave of the staff.

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APPENDIX *V*.

RETURN OF WORK DONE AT THE CLINICAL LABORATORY, GENERAL HOSPITAL, SINGAPORE, FOR THE YEAR ENDING 31ST DECEMBER, 1930.

Blood films.—

(*a*) For Malaria—			
B. T. ...	parasites present ...	31	
S. T. ...	,, ,, ...	102	
Q. ...	,, ,, ...	2	
B. T. & S. T. ...	,, ,, ...	4	
B. T. & S. T. & Q.	,, ,, ...	1	
B. T. & Q. ...	,, ,, ...	1	
No ..	,, ,, ...	537	678
(*b*) For Filaria—			
Positive ...	... ...	11	
Negative ...	... ...	22	33
(*c*) For Stippling ...	... ...		36
(*d*) For Leukæmia—			
Myelogenous ...	... ...	6	
Lymphatic ...	... ...	1	7
	Carried forward ...		754

APPENDIX *V.—Continued.*

Return of work done at the Clinical Laboratory, General Hospital, Singapore, for the year ending 31st December, 1930.—*Contd.*

Brought forward ...		754
Blood.—		
Urea		141
Sugar		444
Total blood cell count		1,740
Differential blood cell count		316
Hæmoglobin—sahli		582
Icterus Index		7
Fouchet		15
Van den Bergh		25
Calcium		1
Coagulation time		1
Bleeding time		1
Platelet count		3
Matching		87
Grouping		15
Reticulocyte count		3
Gastric Analysis		566
Vomit.—		
For blood positive		1
Urine.—		
For Chemical Examination	1,660	
Microscopical Examination	1,625	
Urea	88	
Quinine	27	
		3,400
Stools.—		
Ankylostome Ova found	4	
Ankylostome Ova +	—	
Round worm Ova found	1	
Tapeworm Ova found	1	
Active Amœbæ found	11	
Red blood cells found	1	
White blood cells found	2	
White and Red cells found	45	
No Ovo, amœbæ or blood cells	25	
Cholera vibrio—negative	4	
Trichomonas	1	
Ankylostoma + Tape Worm ova found	1	
Occult blood	27	
Worms	—	
Round + Ankylostome found	1	
Tape worm (Sajinata)	2	
No worms	24	
		150
Carried forward ...		8,252

APPENDIX *V.—Concluded.*

RETURN OF WORK DONE AT THE CLINICAL LABORATORY, GENERAL HOSPITAL, SINGAPORE, FOR THE YEAR ENDING 31ST DECEMBER, 1930.—*Concld.*

Brought forward ...		8,252
Sputum.—		
Tubercle Bacilli present	3	
Tubercle Bacilli not found	16	
		19
Cerebro spinal fluid.—		
Cell count	40	
Globulin	15	
Sugar	8	
Smears	67	
Urea	15	
		145
Smears.—		
Skin Lepra bacilli positive	3	
Skin Lepra bacilli negative	17	
Nose Lepra bacilli negative	21	
Nose Diphtheria bacilli positive	1	
Nose Diphtheria bacilli negative	1	
Throat Diphtheria bacilli positive	1	
Throat. Diphtheria bacilli negative	6	
Prostate Gonococci positive	1	
Prostate Gonococci negative	6	
Vagina Gonococci positive	2	
Vagina Gonococci positive	12	
Vagina Spermatozoa	2	
Pleural fluid	38	
Peritoneal fluid	9	
Eye	4	
Spleen Malarial parasites, negative	1	
Abscess Liver	—	
Active Amœbæ positive	2	
Active Amœbæ negative	8	
Folleculitis	1	
Tongue	2	
Lymphatic gland Bacillus pestis negative	2	
Wrist joint	1	
Abscess skin	1	
Cervix Gonococci positive	2	
Cervix Gonococci negative	5	
		99
Total ...		8,565

APPENDIX *VI.*

ROUTINE LABORATORY.

Return of specimens examined for the year ending December, 1930.

Stools	18,494
Blood films	16,882
Sputum	4,396
Urine	996
Smear (Urethral)	424
Smear (Vaginal)	260
Smear (Throat)	17
Smear for L.B.	25
Smear for Meningo cocci	13
Smear Eye	253
Other Smears	46
Total Specimens examines	41,806

Blood Films.—

Negative	14,723
S. T. R.	1,225
B. T.	503
Quartan	26
S. T. R. and Crescent	102
S. T. B. T. and Crescent	11
B. T. and S. T.	160
B. T. and Quartan	13
S. T. and Quartan	24
Crescent	65
B. T. S. T. Q. and C.	1
B. T. and Crescent	5
S. T. B. T. and Quartan	7
Quartan and Crescent	1
Total	16,866

Stools.—

Negative	7,635
Ankylostoma Ova	2,942
Round Worm Ova	1,548
Whip Worm Ova	1,516
Ankylostoma and Round Worm Ova	1,052
Ankylostoma Round and Whip Worm Ova	591
Ankylostoma and Whip Worm Ova	978
Thread Worm Ova	31
Round and Thread Worm Ova	7
Anky and Thread Worm Ova	21
Strongyloids	3
Tænia Saginata	13
Tænia Soleum	1
Thread and Whip Worm Ova	7
Round Worm Ova and Strongyloids	2
Anky Round and Thread Worm Ova	12
Anky Whip and Thread Worm Ova	14
Anky Round Whip and Thread Worm Ova	13
Anky Whip and Strongyloids	2
Clonorchis Sinensis	5
Hectophes Hectophes	1
Total	17.590

APPENDIX *VI.—Continued.*

ROUTINE LABORATORY.—*Continued.*

RETURN OF SPECIMENS EXAMINED FOR THE YEAR ENDING DECEMBER, 1930.—*Ctd.*

Stools for Occult Blood	3
Stools for T. B.	2
Stools for Cholera Vibrio	5
Total ...	10

Amœbic Stools.—

Active Amœbæ	59
Active Amœbæ and Trichomonas	1
Red Blood cells	30
Pus cells	120
Blood and Pus cells	308
Pus cells and Trichomonas	1
Trichomonas	6
Balantedium Coli and Trichomonas	1
Balantedium Coli	1
No Amœbæ	367
Total ...	894

Blood for "Filaria".—

Negative	4
Possitive	5
Total ...	9

Smears (Vaginal).—

Negative	77
Positive	183
Total ...	260

Smear for B. Pestes.—

Negative	1
Positive	—
Total ...	1

Smear Throat for K. L. B.—

Negative	15
Positive	2
Total ...	17

Blood for Lukæmia.—

Mylogenous Lukæmia ...	4
Lymphatic Lukæmia ...	2
Total ...	6

Smear for L. B.—

Negative	24
Positive	1
Total ...	25

Urine.—

Microscopical ...	906
Microscopical for T. B.	10
Meyer's Test ...	10
Chemical	70
Total ...	996

Spinal fluid for Meningo Cocci.—

Negative	11
Positive	2
Total ...	13

Eye Smears.—	253
Other Smears.— ...	46

Sputum.—

Negative	3,856
Positive	540
Total ...	4,396

Smears (Urethral).—

Negative	143
Positive	281
Total ...	424

APPENDIX "E"

REPORT ON TREATMENT OF OPIUM HABIT DURING 1930

I.—SINGAPORE

Remained on 31st December, 1929	13
Admitted during 1930	1,118
Total ...	1,131
Discharged	573
Absconded	525
Discharged for breaking rules	11
Unfit for treatment	—
Remaining on 31st December, 1930	22
Total ...	1,131

The numbers seeking admissions decreased during the 2nd half of the year 1930.

Before commencing treatment all patients are carefully examined:— Urine, sputum and faeces are also fully examined.

If found physically fit they are given a dose of Hydrag Subchlor grs. 3 with sod. Bicarb. Grs. 10. Stat. followed by Mist Alba 2 ounces 3 hours after.

Every morning Atropine Sulph. injections are given subcutaneously beginning with Gr. 1/75 and increasing the dose daily to Grain 1/55, grain 1/33 and grain 1/25 on the fourth day. The latter dose is the maximum and is continued until the end of treatment, which last on an average 10 days. Mist Ammon Bromide one ounce is given every night, alternating with Chloretone grains 10, when patients complain of sleeplessness. Mist Nux Vomica et Gentian Co ounce one TDS. A.C. is given to all patients.

All patients are weighed daily and are mostly found at the end of treatment to have gained from 1 to 2 pounds in weight.

Notice, in Chinese, are hung up in the ward warning patients that they would be discharged if they ever leave the ward. No visitors are allowed inside the ward.

A search for opium is made on all patients every day and if found with the drug, they are immediately discharged.

II.—PENANG

1.	Remained on 31st December, 1929	16
2.	Admitted during 1930	170
		186
3.	Unfit for treatment	—
4.	Absconded or not cured	16
5.	Discharged	170
6.	Remaining on 31st December, 1930	—

The number of patients seeking treatment fell considerably, after the system of admission was changed. Previously, admission orders were issued by the Protector of Chinese to patients requesting anti-opium treatment. These orders had a definite cash value, and were traded by the recipients and sold to coolies desiring a fortnight's free board and lodging at the Hospital. The Protector of Chinese, therefore, ceased issuing orders, and admission to the Anti-Opium Ward was only granted on application at the Hospital by the person requiring treatment. Few genuine cases so presented themselves, and during the second half of the year, the demand for treatment ceased, and there were no cases under treatment at the end of the year.

III.—MALACCA

There were 4 patients remaining in the hospital at the end of 1929, and 309 were admitted during the year 1930, making a total of 313 treated. Of these, 33 underwent the complete course of treatment, 5 absconded and 272 left the Hospital before the completion of the treatment. There were 3 patients remaining at the end of 1930 in the Hospital.

APPENDIX "F"

I.—MEDICAL INSPECTION OF ENGLISH AND MALAY GIRLS' SCHOOLS, SINGAPORE.

The reports are on the same lines as those for 1929. The services of a female clerk were available throughout the year. During the first half of the year, the usual routine examinations were made, and in the 2nd half those found defective were re-examined and special treatment such as for hookworm was carried out.

In addition special visits for following up cases or for the purpose of general school hygiene were made throughout the year and visits were paid to Chinese private schools and reports forwarded to the 2nd Director of Education (Chinese) as these were examined.

Six such reports were forwarded during the year.

In 1930, the number of children medically inspected in the three groups was 7,063 out of a possible 7,352. This is an increase of 91 over the figures for 1929.

Five thousand and sixteen children were re-examined.

Vaccinations	*1930*		*1929*	
	Requiring Re-vaccination	*Successfully Re-vaccinated*	*Requiring Re-vaccination*	*Successfully Re-vaccinated*
—	—	—	—	—
Govt. Girls	48·9%	60·3%	32·2%	62·5%
Malay Girls	52·7%	64%	88·4%	81%
Junior Boys	33%	70·1%	40·4%	74·9%

Two thousand nine hundred and forty-eight children required re-vaccination and 2,570 were re-vaccinated either at school or by private practitioners. The large number of 378 omitted to comply with the request for re-vaccinations which cannot be enforced under the present regulations for Schools.

The vaccinations were done by the Government Vaccinator with the exception of the Malay girls who were vaccinated by the Lady Health Officer in charge of Schools.

The examination of stools was made in the case of all the Malay Girls' Schools.

One hundred and thirteen girls were found to be infected with hookworm.

Three hundred and eighty-five girls were found to be infected with roundworm.

Two hundred and eighty-seven girls were found to be infected with whipworm.

One hundred girls with hookworm infection were treated with Chenopodium at school. No ill effects followed the use of the drug.

Altogether 15,218 examinations, re-examinations, etc. were made during 1930.

Five thousand and forty children or 71·3% were referred for treatment as a result of the routine examinations.

This number was distributed as follows: —

The six Government or Aided Girls' Schools had 3,458 girls on the roll of whom 3,300 were examined and 2,033 referred for treatment.

The Malay Girls totalled 495 of whom 469 were examnied and 388 referred for treatment.

The Junior Boys totalled 3,399 of whom 3,296 were examined and 2,619 were referred for treatment.

These figures seem high but they include dental caries enlarged cervical glands and re-vaccinations.

A few figures taken from the physical survey for 1930 and compared with those for 1929 are given below: —

Nutritional	*1930*		*1929*	
Condition	*Undernourished*	*Improved*	*Undernourished*	*Improved*
Govt. Girls	2·3%	42·1%	1·2%	26·2%
Malay Girls	0%	—	5·6%	33·3%
Junior Boys	1·6%	38·5%	9·4%	24·2%

In spite of the bad economic conditions prevailing in Singapore, there were fewer cases of undernourished children this year, and there was more improvement noticed in these at the 2nd examination.

Cleanliness.—Of all the children examined 2·8% were found dirty, *i.e.* they required thorough washing with soap and water. Plenty of water is used generally, but soap remains a luxury.

1·3% girls of the English Schools had verminous heads practically the same number as for last year.

16·4% Malay girls' heads were verminous which is an improvement over 20·1% for 1929.

Dental Caries	*1930*		*1929*	
	Incidence	*Improved*	*Incidence*	*Improved*
Govt. Girls	51·9%	59·1%	39·6%	55·4%
Malay Girls	61%	49·3%	56·2%	60·6%
Junior Boys	65·3%	70·4%	54·8%	72·8%

Dental carries accounts for the bulk of cases referred for treatment and the incidence was higher this year in all three groups. The boys maintained a high percentage of improvement; the Government girls showed a slightly greater improvement, but the Malay girls had fallen back.

The biggest incidence of bad teeth is amongst the youngest children and particularly amongst the entrants.

Enlarged Tonsils	*1930*		*1929*	
and Adenoids	*Incidence*	*Improved*	*Incidence*	*Improved*
Govt. Girls	13%	34·9%	10·5%	53·2%
Malay Girls	19%	24·7%	18·3%	23·1%
Junior Boys	9·1%	48·3%	15·4%	34%

Non-surgical conservative treatment is adopted for enlarged tonsils and only in cases of prolonged excessive hypertrophy is operation advised. In many cases the hypertrophy disappears normally.

Thirty-six cases of tonsillectomy were reported in 1930 compared with 9 in 1929.

Defective Vision		1930		1929	
		Incidence	*Improved*	*Incidence*	*Improved*
—		—	—	—	—
Govt. Girls	...	3·2%	35·8%	2·2%	28·7%
Malay Girls	...	0·2%	100%	—	—
Junior Boys	...	1·4%	60·9%	1·5%	12·2%

There was little change in the number reported with defective vision this year, but there was a big improvement in the number who obtained glasses before the 2nd examination. This is highly commendable, but one feels that as there are so few children in these schools with defective vision, every child so disabled and unable to work comfortably should be fitted with glasses. The co-operation of teachers is invaluable here.

Eye Conditions.—Showed no variation and were chiefly cases of squint, conjunctivitis and a trachomatous condition which does not appear to be very infectious.

		1930		1929	
Anæmia		*Incidence*	*Improved*	*Incidence*	*Improved*
—		—	—	—	—
Govt. Girls	...	4·2%	40·3%	1·9%	53·1%
Malay Girls	...	10·9%	58·8%	5·8%	21·4%
Junior Boys	...	2·6%	58·1%	10%	82·2%

As a whole the cases of anæmia showed little change in incidence and improvement. Those suspected of harbouring worms received treatment for these.

		1930		1929	
Skin Conditions		*Incidence*	*Improved*	*Incidence*	*Improved*
—		—	—	—	—
Govt. Girls	...	2·4%	78·2%	4·4%	53%
Malay Girls	...	3·8%	77·8%	5·8%	40%
Junior Boys	...	7·5%	83·1%	13·4%	75·9%

Skin diseases are gradually being eliminated from the schools. Ringworm has practically disappeared. Three cases only were found in 7,063 children. This improvement is due to the prompt treatment of skin conditions either at the school or Government Dispensaries.

There were 2 cases of leprosy. An early nodular type was found in a girl of 8 and the nerve type in a boy of 12.

The infectious diseases reported during the year were mostly mild in character. There were 201 altogether comprising mumps 22, chicken-pox 80, measles 75, whooping cough 15 and typhoid fever 9.

Sanitation and Food.—These were satisfactory in most of the Schools.

Conclusion.—In reviewing the work of the year, a steady progress is seen. The bad industrial conditions have not affected the health of the school child. This has maintained its gradual upward trend and a brighter, cleaner and healthier child is the result. Many factors have contributed to this. There is an improvement in the housing conditions generally. More houses have now water and modern sanitation installed. Play-grounds for children have been provided in open spaces in the town and many school play-grounds are now equipped with play apparatus.

Physical exercises and school games are organised in all the schools.

The facilities for medical treatment have improved. Special hours for school children who cannot afford private doctors are reserved at Government Dispensaries where treatment is free. Children are sent here from school and, if necessary, are referred to hospital for further treatment. Free surgical treatment can now be had at Tan Tock Seng Hospital where Specialists from the General Hospital attend for this purpose. A very important addition to the School Service this year was the opening of an Eye Ward in this hospital.

But the greatest contributing factor to the improved health of the school child is to be found in the schools themselves. Here the Principals and Teachers are devoting much patience and energy to the important subject of Health and it is largely due to their efforts that the high standard of health and cleanliness was obtained during 1930.

I.—(*a*)—MEDICAL EXAMINATION OF THE LOCALLY TRAINED FEMALE TEACHERS IN SINGAPORE.

Two hundred and nine teachers were examined during the year compared with 193 in 1929.

They were from the following schools:—

Raffles Girls' School	18
French Convent	18
Methodist Girls' School	23
Fairfield Girls' School	18
St. Anthony's Convent	5
Singapore Chinese Girls' School	6
Assistant Supervisor of Malay Schools	1
Rochor Malay Girls' School	6
Kampong Glam Malay Girls' School	3
Geylang Malay Girls' School	5
Kampong Roko Malay Girls' School	4
Siglap Malay Girls' School	2
Telok Kurau Malay Girls' School	5
Pearls' Hill Boys' School	15
Radin Mas Boys' School	1
Gan Eng Seng Boys' School	10
St. Andrew's Boys' School	8
Anglo-Chinese Boys' School	11
St. Anthony's Boys' School	6
St. Joseph's Institution	3
Rangoon Road Boys' School	8
Victoria Bridge Boys' School	4
Geylang English Boys' School	8
McNair Road Boys' School	12
Teluk Kurau English Boys' School	5
Serangoon English Boys' School	4
	209

The appended table summarises the results of the examinations. Those teachers found defective at the 1st examination were re-examined in the 2nd half of the year. It was found, as in the previous year, that cases of re-vaccination, dental caries and pharyngitis formed the majority of defects. A few extracts from the report are given below.

One teacher was undernourished. Three young Malay teachers had verminous heads.

Fifty-nine or 28.2% required re-vaccination and 28 or 47.5% were successfully re-vaccinated. The corresponding figures for 1929 were 50% and 72%. Three teachers, 1 from Pearls' Hill School and 2 from St. Anthony's Boys' School, did not comply with the request for re-vaccination and gave no reason.

14·8% had carious teeth compared with 18·6% in 1929.

There were 9·1% cases of pharyngitis compared with 12% last year. This is a chronic condition in the majority of cases and causes few symptoms. Fewer cases of defective vision were reported 1.9% compared with 3.1% in 1929. 75% of these had obtained glasses before the second examination compard with the lower figure of 50% for 1929. There were fewer cases of skin conditions and these were all acne which does not respond readily to treatment.

The report for 1930 shows a decrease in the number of sub-normal cases and a slightly higher standard of health for the year.

II.—Medical Examination of Boys' Schools, Singapore

1. *Work done.*—The following table gives the numbers of boys systematically examined in Government English, Aided and Vernacular Schools:—

Year	*In Government and Aided Schools*	*In Vernacular Schools*	*Grand Total*
1928	4,072	1,638	5,710
1929	5,859	1,920	7,779
1930	6,067	2,371	8,438

2. All the Government-Aided and Private Schools, numbering forty were inspected as to their sanitary arrangements and accommodation capacity. One hundred and fourteen Chinese schools, nineteen Malay Vernacular Schools including the new Malay School at Tanah Merah Besar, were inspected with the same purpose.

3. Data elicited from systematic examinations of boys:—

(*a*) *General Condition.*—

	1928	*1929*	*1930*
Fat	7·76%	4·42%	2·29%
Good	72·87%	81·90%	83·52%
Fair	15·01%	11·58%	13·25%
Poor	4·24%	2·10%	·94%

(*b*) *Cleanliness.*—The percentage of dirty children was 6·11% compared with 0·84% in 1929.

(*c*) *Vaccination.*—This was done by the vaccinator attached to the Health Branch. His figures below show a summary of work done. The total vaccinated was 2,369.

English Schools	*Malay Boys' Schools*	*Total*
1,287	1,082	2,369

(*d*) *Eye-sight.*—(1) Defective Vision and (2) Diseases of the eye proper. Total number of defective vision was 226 cases, diseases of the eye 345 cases. Pupils with the defects greater than 6/9 were enabled to see an optician Under the second category were (*a*) Trachoma 207, (*b*) Conjunctivitis 24, (*c*) Follicular Conjunctivitis 94, (*d*) Acute Conjunctivitis 1, (*e*) Granular Conjunctivitis 2, (*f*) Leucoma 9, (*g*) Ptosis 2, (*h*) Ectropion 1, (*i*) Blepharitis 1, (*j*)

Sub-Conjunctival Hæmorrhage 2 (*k*) Chalazion 1, (*l*) Corneal Opacity 1. These cases were sent for treatment either to the General Hospital, Mandalay Road Hospital, or to an out-door dispensary.

(*e*) The percentage of caries amongst school children was 38·53% compared with 49·8% in 1929.

(*f*) The percentage of enlarged tonsils and adenoids amongst school children for the year 1930 was 22·30%. The figures for the previous years for purposes of comparison are not available.

(*g*) *Sanitation.*—Visits to schools—The number of visits was 395. Reports and recommendations were submitted to the Inspector of Schools through the Chief Health Officer.

(*h*) *Infectious Diseases.*—(1) Chicken-pox 36 cases, (2) Whooping Cough 1 case, and (3) Measles 4 cases.

4. *Medical Certificates of Room Accommodation.*—These were given whenever necessary to all the classes of schools requiring them, and were sent to the Principals of the Schools through the Inspector of Schools stating the number to be accommodated according to Regulation 12 of the School Ordinance, 1920.

5. *Lecture.*—A lecture on hookworm infection and treatment was delivered to the pupils of the Outram Road School. Short talks on Health Habits were given whenever necessary during the routine medical examination of pupils.

6. *Hookworm Surveys.*—Hookworm surveys were carried out at the following schools, *viz.*:—Gan Eng Seng School and Victoria Bridge School

7. *Hookworm treatment.*—Hookworm treatment was given to the pupils of Outram Road School on the results of the stool examination.

8. *Travelling Dispensary.*—During its usual itinerary, the Vernacular Schools *en route* were visited and treatment given to the pupils free of charge.

9. *Examination of pupils before Admission to Schools.*—Seventy-five new entrants of the Victoria Bridge School were examined by request of the Principal. The new entrants of Anglo-Chinese School will be examined in the early part of 1931.

10. *Systematic Examination of School-Teachers of Government, Aided and Vernacular Schools.*—The total number examined was 271.

11. *Treatment of Diseases of School Children.*—Treatment was carried out at all the Out-Door Dispensaries, the General Hospital and the Mandalay Road Hospital. At the Mandalay Road Hospital 134 school children were treated as in-patients of whom 56 were Malays, 66 Chinese, and other nationalities 12; of these 115 were surgical cases and 19 medical cases.

12. *Issue of Posters to Schools.*—Seventy cardboard mounted posters on "Malaria", 70 "Small-pox" posters, 34 "Hookworm Prevention" posters, 14 "Care of Teeth" posters, 14 "Rabies" posters and 14 "Flies are dangerous" posters were given to the English and Malay Vernacular Schools through the Inspector of Schools.

13. Results of treatments carried out as reported by the Principals are given in tabulated form on page 4.

14. *General.*—It is evident from a comparison of the above figures that health work amongst the Boys' Schools has progressed considerably. We are indebted to the Inspector of Schools and the Heads of schools for their co-operation and encouragement.

Dr. K. C. GHOSH officiated as Assistant Health Officer, Schools, up to the 19th January when he was transferred to the College of Medicine, and Dr. S. SINNADORAI from January 20th to the close of the year.

TREATMENT AS CARRIED OUT SINCE LAST MEDICAL EXAMINATION

Schools	Anaemia	Enlarged Cervical Glands	Defective Vision	Trachoma	Follicular Conjunctivitis	Conjunctivitis	Otorrhoea	Enlarged Tonsils	Adenoids	Dental Caries	Sordes	Dirty	Scabies	Ringworm	Enlarged Spleen	Ulcer	Eczema	Hernia
Anglo-Chinese School ...	5	1	18	8	...	2	...	61	...	57	...	...	...	15	...	4	4	...
Gan Eng Seng School ...	...	...	7	4	...	...	...	49	...	61	6	2	1	...	...	...	...	...
Geylang English School ...	1	...	2	8	...	1	...	25	...	37	...	3	...	1	4	...	...	...
Holy Innocents School ...	18	...	2	7	...	...	...	72	...	32	...	...	1	1	...	4	2	...
McNair School ...	...	...	...	1	...	...	...	4	...	5	1	...	1	...	...	...	...	...
Outram School ...	11	5	6	2	...	1	...	11	1	36	...	...	...	...	...	4	1	...
Raffles Institution ...	4	1	32	8	...	...	...	49	...	75	...	...	3	24	...	2	...	3
Rangoon Road School ...	10	...	16	...	...	...	...	39	1	215	...	...	...	5	...	...	...	1
Serangoon English School	1	...	...	3	...	...	...	12	...	2	...	...	...	...	...	1	1	...
St. Anthony's School ...	2	...	7	...	...	...	...	34	...	81	...	37	3	...	...	3	2	1
St. Joseph's Institution ...	10	1	15	3	...	...	2	350	...	545	3	55	10	9	...	5	1	1
Telok Kurau English School	2	1	...	7	...	...	...	27	...	28	...	7	...	5	...	7	...	1
Victoria Bridge School ...	1	1	3	18	9	...	1	74	...	18	...	2	3	6	1	1	1	...
Totals ...	65	10	108	69	9	4	3	807	2	1,192	10	106	22	66	5	31	12	7

III.—SCHOOLS, PENANG

There are 26 vernacular schools in Penang with a total enrolment of 2,765 scholars. These are medically examined each year by the Deputy Rural Health Officer (Dr. H. R. SARAVANAMUTHU) so as to get the health and sickness statistics of the scholars in Penang. In addition, Dr. H. R. SARAVANAMUTHU visits these schools monthly to supervise treatment of minor ailments and to deliver lectures. Seventy-three visits were made to schools during the year and 53 lectures were delivered dealing principally with hookworm and malaria prevention, illustrated by posters and diagrams. There are 11 English schools in George Town which were inspected by Dr. AU KEE HOCK, the Assistant Medical Officer in charge of the Chowrasta Dispensary, who was deputed by the Chief Medical Officer, Penang, to perform this duty.

The Girls' Schools in Penang number 17, three of which are English and 14 Vernacular, with a nominal roll of 3,139 scholars; these are visited by the Lady Medical Officer attached to the Maternity Hospital, Penang.

There are 12 girls' schools in Province Wellesley and the Dindings with a nominal roll of 693 pupils; these are also inspected by the Lady Medical Officer in Penang. In Province Wellesley, there are 47 boys' schools, with a total attendance of 4,600 boys which are inspected by the Health Officer, Province Wellesley, assisted by the Assistant Medical Officers attached to the three hospitals situated in Province Wellesley, North, Central and South. In the Dindings, there are 9 schools with an attendance of 609 boys. There are thus a total of 17,066 pupils under medical surveillance in the Northern Settlement.

The following is a summary of school examinations in boys' schools of which further details are shown in Appendix *III*.

School Data (Boys)

Details of Medical Inspection	By Medical Officer in part time change of schools	By Deputy Health Officer, Rural	By Medical Officers in P.W. and the Dindings
Number of schools visited ...	6	27	58
Number of Boys examined ...	2,420	6,675	5,745
Number of Boys exhibiting gross physical defects	24	134	655
Dental defects	1,355	2,543	2,809
Defects of Eye, Ear, Nose and Throat	1,107	441	821
Skin Diseases	...	...	...

An examination of the above figures reveals the great number of physical defects present in the pupils and the need for something to remedy them.

Medical examinations of schools in rural areas are followed by visits of the Travelling Dispensary, the dresser in charge of which administers treatment to those requiring the same. In the town schools a memorandum is sent by the headmaster to the parents or guardians of the pupil, informing them of the nature of the defect and the treatment required for its relief or eradication.

There were three changes during the year in the post of Lady Medical Officer, Maternity Hospital and girls' schools, Penang. Dr. E. BIRD held the appointment from 1st January, 1930 to 26th February, 1930, when she resigned and returned to England. Dr. M. E. HOPKINS succeeded her on 24th March, 1930, and resigned on 26th June, 1930, owing to ill health.

Dr. N. WEBSTER was appointed to the post on 26th June, 1930, and has carried on to the end of the year.

Owing to these changes the inspection of girls' schools in the Settlement has not been completed during the year.

The following is a list of the schools examined by the different Lady Medical Officers:—

Government Girls' School.
Kedah Road Girls' School.
Kelawai Girls' School.
Dato Kramat Girls' School.
Jelutong Girls' School.
Convent Girls' School.
Kindergarten Department Anglo-Chinese Girls' School (Burmah Road).

IV.—SCHOOLS, MALACCA

Staff.—School inspections are carried out by the Health Officer, the Lady Medical Officer, Deputy Health Officer, and by the Assistant Health Officers in the Jasin and Alor Gajah Districts.

Sanitation.—All Schools in the Rural areas have pit or mounted pit latrines except Lereh which has Bucket Latrines.

General.—The general health of schools has improved. The intensive hookworm treatment has had a marked beneficial effect upon pupils as regards their general physical condition and more especially on their intelligence.

The amount of Malaria as shown by the Spleen Rate is very small in the Central area—but increases as one approaches the Hilly Malacca and Negri Sembilan border.

Along the Coast, the amount of Malaria is practically Nil. This is confirmed by the Police Station figures and by the Malarial Surveys. A complete list of the School work is detailed below, including a Special List giving Spleen Rates for each School.

School Sanitation is fairly satisfactory—but a number of the Schools require better Latrine accommodation. An effort is being made to carry out improvement in this direction.

The Deputy Health Officer (Dr. Richards) has done detailed work in School *e.g.* General Health Instruction—Lectures—health pamphlets, Spleen Rates and Malarial investigation in particular Areas, etc.

There are 8 English Schools (5 boys' and 3 girls') 83 Malay Vernacular Schools (75 boys' and 8 girls') and 35 Chinese Schools in Malacca. Of these, all the Malay Vernacular Schools, and all the English Schools except two, and 11 Chinese Schools were examined during 1930.

The following is a summary of the School examinations:—

Details of Medical Inspection	Lady Medical Officer	Dy. Health Officer Central (District)	Asst. Health Officer Jasin	Asst. Health Officer Alor Gajah
No. of Schools inspected	10	34	16	40
No. of Children inspected ...	583	4,673	1,687	3,404
General Condition (Poor) ...	191 (32.76%)	151 (3.23%)	116 (6.88%)	11 (.32%)
Dental Defects	487 (83.53%)	2,842 (60.82%)	1,128 (66.86%)	1,402 (41.19%)
Defects of vision greater than 6/9	65 (11.15%)	92 (1.97%)	29 (1.72%)	42 (1.23%)
Enlarged Tonsils	468 (80.27%)	415 (9.31%)	901 (53.41%)	1,239 (36.40%)
Enlarged Spleen	3 (.51%)	167 3.57%)	114 (6.76%)	149 (4.38%)
Skin Diseases	90 (15.44%)	894 (19.13%)	84 (4.98%)	190 (5.58%)
Lectures	—	117	20	47

Three hundred and sixty-three children were examined by the Health Officer; these are included in the Central District figures.

Extract from report of Lady Medical Officer (Dr. L. S. O'May) on Girls' Schools.

Treatment.—Treatment of the various ailments was carried out in the Malay Schools. All those who had not been vaccinated in the last 3 years were vaccinated.

Worm treatment was given to all the Malay Schools.

Malaria.—Girls with enlarged spleen are practically nil. Three cases only out of the 583 children examined.

Spleen Rates of Malay Vernacular School Children in Malacca

Central District		Alor Gajah District		Jasin District	
Cheng	2.40%	Alor Gajah ...	1.35%	Chin Chin ...	4.32%
Bertam Hulu ...	20.93%	Ayer Molek ...	3.23%	Merlimau ...	0.00%
Batu Berendam ...	6.55%	Ayer Pa'abas ...	8.16%	Serkam ...	0.00%
Paya Rumput ...	13.33%	Brisu	0.93%	Tedong ...	0.00%
Ujong Pasir ...	4.21%	Bukit Beringgin ...	1.46%	Chabau ...	18.18%
Bukit Katil ...	14.54%	Chirana Puteh ...	37.84%	Bukit Senggeh ...	18.48%
Padang Temu ...	0.0%	Durian Daun ...	5.95%	Sungei Rambei ...	0.00%
Bukit Beruang ...	0.0%	Durian Tunggal ...	3.23%	Jasin	7.78%
Tampoi ...	9.67%	Ganun ...	3.85%	Kesang	11.90%
Telok Mas ...	1.33%	Kemuning ...	41.94%	Ayer Panas ...	8.97%
Kandang ...	2.32%	Kuala Linggi ...	0.00%	Btg. Malaka ...	48.28%
Sungei Udang ...	16.66%	K. Sungei Bahru ...	0.00%	Sebatu ...	0.00%
Limbongan ...	2.04%	Lendu	4.11%	Selandar ...	17.50%
Pringgit ...	1.36%	Lobak Redan ...	1.98%	Nyalas ...	8.63%
Bukit Bahru ...	1.63%	Machap ...	15.38%	Average Spleen rate for Jasin District	6.70%
Pernu	2.30%	Malaka Pindah ...	5.38%		
Bukit Lintang ...	6.34%	Masjid Tanah ...	1.55%		
Bukit Rambei ...	3.33%	Melekek ...	0.00%		
Klebang Besar ...	3.92%	Padang Sebang ...	9.03%		
Semabo ...	1.02%	Parit Melana ...	2.54%		
Tranquerah ...	3.03%	Pegoh	3.92%		
Krubong ...	11.57%	Pengkalan Balak ...	1.47%		
Batang Tiga ...	0.00%	Pulau Sebang ...	11.82%		
Bachang ...	1.62%	Ramuan China Besar ...	3.06%		
Kampong Gelam ...	3.77%	Ramuan China Kechil ...	6.82%		
Tangga Batu ...	5.55%	Rumbia ...	2.56%		
Punggor ...	0.84%	Sempang Ampat ...	3.85%		
Ayer Molek ...	8.49%	Sungei Petai ...	5.00%		
Lereh	0.93%	Sungei Seput ...	0.00%		
Bukit China ...	5.12%	Tanjong Bedara ...	1.56%		
Average Spleen rate for vernacular Schools in Central area ...	4.78%	Tebong	44.44%		
		Average Spleen rate for Alor Gajah District ...	4.56%		

APPENDIX "G"

SOCIAL HYGIENE BRANCH, MEDICAL DEPARTMENT

ANNUAL REPORT FOR THE YEAR 1930.

BY DR. R. W. C. KELLY, CHIEF MEDICAL OFFICER, SOCIAL HYGIENE

1. *Treatment Centres.*—

SINGAPORE

Male Clinics.—

(*a*) Bencoolen Street Clinic.
(*b*) Sago Street Clinic.
(*c*) General Hospital Clinic.
(*d*) Tanjong Pagar Clinic.

Female Clinics.—

(*a*) North Canal Road Women and Children Outdoor Dispensary.
(*b*) Kandang Kerbau Women and Children Outdoor Dispensary.

Outdoor Dispensaries which treat V. D. cases.—

(*a*) Joo Chiat Road Outdoor Dispensary.
(*b*) Bukit Timah Road Outdoor Dispensary.
(*c*) Kandang Kerbau Outdoor Dispensary.
(*d*) Paya Lebar Outdoor Dispensary.

PENANG

(*a*) Kampong Kolam Clinic.
(*b*) General Hospital Clinic.
(*c*) Chowrasta Outdoor Dispensary.
(*d*) Balik Pulau Outdoor Dispensary.
(*e*) Government Travelling Dispensary.
(*f*) Butterworth and Penaga Dispensary.
(*g*) Sungei Bakap Outdoor Dispensary.
(*h*) Lumut Hospital.
(*i*) Bukit Timah Outdoor Dispensary.
(*j*) Pengkalan Bharu Outdoor Dispensary.
(*l*) Prison Hospital.
(*m*) Women and Children Outdoor Dispensary.

MALACCA

(*a*) Durian Daun Hospital.
(*b*) Travelling Dispensary.
(*c*) V. D. Clinic, Malacca.
(*d*) Government Outdoor Dispensary, Jasin.
(*e*) Government Outdoor Dispensary, Alor Gajah.
(*f*) Prison Dispensary.

2. *Classification of cases.—*

New cases.—

	Singapore		*Penang*		*Malacca*	
	1929	*1930*	*1929*	*1930*	*1929*	*1930*
Males ...	19,882	21,195	8,637	9,402	2,496	3,122
Females ...	2,586	2,035	368	458	203	181
Total ...	22,468	23,230	9,005	9,860	2,699	3,303
Re-attendances.—						
Males ...	162,510	209,403	20,445	35,043	3,319	4,977
Females ...	13,183	9,946	4,871	4,728	318	268
Total ...	175,693	219,349	25,326	39,771	3,457	5,245
Total attendances including new cases.—	198,161	242,579	34,331	49,631	6,156	8,524

2. *Classification of diseases.—*

	1929			*1930*		
	New cases	*Reattendances*	*Total*	*New cases*	*Reattendances*	*Total*
Singapore.						
Syphilis ..	9,127	60,270	69,397	8,252	68,354	76,606
Soft Sore ...	2,092	21,817	23,909	3,652	41,443	45,095
Gonorrhœa ...	5,432	58,400	63,832	5,822	78,577	84,399
Others ...	5,817	35,206	41,023	5,504	30,975	36,479
Total ...	22,468	175,693	198,161	23,230	219,349	242,579
Penang.—						
Syphilis ...	5,018	13,593	18,611	5,713	24,550	30,263
Soft Sore ...	214	921	1,135	305	1,037	1,342
Gonorrhœa ...	2,985	9,693	12,678	2,022	10,406	12,428
Others ...	788	1,119	1,907	1,820	3,778	5,598
Total ...	9,005	25,326	34,331	9,860	39,771	49,631
Malacca.—						
Syphilis ...	1,438	1,573	3,011	1,833	2,874	4,707
Soft Sore ...	259	318	577	368	656	1,024
Gonorrhœa ...	768	1,258	2,026	853	1,368	2,221
Others ...	234	308	542	249	347	596
Total ...	2,699	3,457	6,156	3,303	5,245	8,548

NO. OF ATTENDANCES BY NATIONALITIES

	New cases	Re-attendances	Total
Singapore.—			
Europeans	441	6,243	6,684
Chinese	15,731	123,383	139,114
Malays	1,250	10,287	11,537
Indians	5,345	72,548	77,893
Others	463	6,888	7,351
Total	23,230	219,349	242,579
Penang.—			
Europeans	105	2,065	2,170
Chinese	6,718	10,873	26,591
Malays	823	4,987	5,810
Indians	2,049	9,658	11,707
Others	165	3,188	3,353
Total	9,860	39,771	49,631
Malacca.—			
Europeans	21	203	224
Chinese	1,830	2,897	4,727
Malays	578	873	1,451
Indians	768	1,031	1,799
Others	106	241	347
Total	3,303	5,245	8,548

Ratio of attendances to New cases.—	*1928*	*1929*	*1930*
Ratio of total attendances to New cases	8.90	8.98	9.45

Treatment of Seamen.—

The Clinic situated at the Docks at Tanjong Pagar caters for men of the Mercantile Marine and conforms to the International Agreement by treating seamen of all nationalities free and providing them with therapeutic agents to carry them through to the next port of call.

Number of seamen treated.—	*1929*	*1930*
New cases	788	803
Re-attendances	4,278	4,764
Total	5,066	5,567

Nationalities of seamen treated.—	*1929*	*1930*
British	194	193
Other Europeans	25	90
Chinese	341	445
Malays	13	16
Indians	63	53
Others	5	6
Total	641	803

Treatment by private practitioners.—

There are at present 10 private practitioners on our list who are supplied by Government with drugs and who have agreed to treat poor patients at a reduced fee.

Number of patients treated by general practitioners during the year are:—

	Syphilis		*Gonorrhœa*		*Total*	
	1929	*1930*	*1929*	*1930*	*1929*	*1930*
New cases ...	1,760	1,598	775	634	2,535	2,232
Re-attendances	1,782	1,729	733	717	2,515	2,446
Total ...	3,542	3,327	1,508	1,351	5,050	4,678

Ablution Centre, Bencoolen Street Clinic.—

The following are the attendances at the Ablution Centre:—

	1929	*1930*
Europeans	119	213
Chinese	338	589
Malays	57	150
Indians	357	415
Others	478	427
Total ...	1,349	1,794

Serological Examinations.—

These are carried out at Singapore by the Professor of Bacteriology and at Penang and Malacca by the officers attached to the Pathological Department at these Settlements.

	No. of blood tests	*Positive*	*Negative*
Singapore	9,540	4,688	4,852
Penang	3,412	2,045	1,367
Malacca	288	119	169

Analysis of work done in V. D. Clinics.—

	Singapore	*Penang*	*Malacca*
(*a*) *Intravenous*—			
1. Arsenobenzol ...	19,020	9,902	4,219
2. Collosol Iodine ...	1,258	502	—
3. Thiostab	113	—	—
4. Neosilbersalvarsan ...	225	—	—
5. Mercurosol	21	—	—
(*b*) *Intramuscular*—			
1. Bismuth	14,368	5,685	1,536
2. Bicreol	59	—	—
3. Contramine	432	7	—
4. Trimine	809	5	—
5. Collosol Manganese ...	321	34	—
6. Gonoyatren	33	—	—
(*c*) *Hypodermic*—			
1. Vaccine Gonorrhœal ...	12,853	1,891	663
2. Sulphostab	3,135	706	216

Miscellaneous.—

		Singapore	Penang	Malacca
1.	Irrigations ...	70,611	10,702	1,981
2.	Dressings ...	112,053	23,413	1,676
3.	Prostatic Massage	43,862	602	89
4.	Minor Operations	997	—	—
5.	Dilatation ...	66	—	—

Microscopical Examinations.—

		Singapore		Penang		Malacca
Gonococci	+	4,964	+	865	+	53
	–	2,222	–	341	–	47

Propaganda.—

The Office continues to distribute pamphlets and leaflets free to the public. Applications from outstations for these were promptly attended to.

Large posters in Chinese, Malay and Tamil are daily posted throughout the streets. These explain the dangers of Venereal Diseases, and the location of the Clinics, and call the attention of the public to the facilities offered by Government of free and confidential treatment.

Cinema films.—

The locally made cinema film "Success or Failure" was shown to the following Associations:—

1.	Chinese Literary Association	120 persons attended
2.	Ban Hœ Association	100 persons attended
3.	Chinese Industrial and Continuation School, shown on 3 occasions ...	900 persons attended
4.	Hui Ann Association	200 persons attended
5.	Kheh Community	250 persons attended
6.	Police Force shown on two occasions ...	600 members of the force attended

Lantern lectures.—

Lantern lectures were delivered during the year to the following:—

1.	Chinese Industrial and Continuation School	200 persons attended
2.	Kheh Community	400 persons attended
3.	Y.M.C.A. and Chinese Literary Association	30 persons attended
4.	Hui Ann Association	47 persons attended
5.	Sanitary Inspectors and visitors ...	45 persons attended
6.	Epworth League	250 persons attended
7.	St. Matthew's Guild	200 persons attended

Schools.—

Lantern lectures were delivered to the boys of the following Schools:—

Anglo-Chinese School	120 boys attended
St. Joseph's Institution	60 boys attended
St. Andrew's Mission School	100 boys attended
Raffles School	200 boys attended

Police Force.—

Two lectures were delivered to the Police Force at the Police Depôt, Thompson Road, by Dr. N. RASIAH in Malay, and 100 members of the force attended the lectures.

Labourers.—

Two lectures, one in Tamil and another in Chinese were delivered to the labourers of the Singapore Harbour Board employees by Dr. N. RASIAH and Dr. HU TSAI KUEN respectively. 200 Tamils and 600 Chinese attended these lectures.

On the 8th June, 1930, an exhibition was held in the Chinese Industrial and Continuation School. A special room was reserved for exhibits from this Office. The exhibition lasted for a week during which time, lantern lectures and cinema demonstrations were given. Large numbers of pamphlets and leaflets were distributed.

The Chief Medical Officer, Social Hygiene, visited Malacca in December, 1930 and delivered two lantern lectures in the Chamber of Commerce Club—about 400 persons of all nationalities attended these lectures.

Chinese lady visitor to brothels.—

The holder of this post resigned on 1st June, 1930, and efforts are being made to find a suitable woman for this very difficult work.

Poh Leung Kuk.—

This is a Rescue Home for Chinese girls under the charge of the Secretary for Chinese Affairs. As many of these girls on admission were found to be suffering from Venereal Disease, arrangements were made to set aside a room on the premises and convert it into a Clinic. This clinic is fully equipped to deal with Venereal Disease cases among the inmates and is under the charge of a lady assistant medical officer.

New cases	294
Old cases	63
Total ...	357

Classification of new cases.—

Primary Syphilis and Gonorrhœa	38
Secondary Syphilis and Gonorrhœa	75
Gonorrhœa	181
Total ...	294

General.—

Two meetings of the Social Hygiene Advisory Board were held during the year.

APPENDIX "H"

EASTERN BUREAU, SINGAPORE

SIXTH SESSION OF THE ADVISORY COUNCIL, LEAGUE OF NATIONS EASTERN HEALTH BUREAU, HELD AT SINGAPORE, DECEMBER 27TH—30TH, 1930.

1. The following resolutions were passed at this session:—

1. The Advisory Council approves the Report of the Director of the Eastern Bureau for 1930.

2. The Advisory Council approves the Estimates of Straits $112,707 for the year 1932.

3. The Advisory Council notes with satisfaction the statement made by the President of the Permanent Committee of the "Office International d'Hygiene publique" at their session of May, 1930 that there would be no objection to the "Office" forwarding telegraphically to the Eastern Bureau information regarding measures applying to countries in the East, as nothing calculated to facilitate the work of the regional bureaus should be neglected by the "Office". The Advisory Council expresses the hope that in the interest of the health of the East this will be interpreted in a very liberal way.

4. The Advisory Council notes with satisfaction the fact that the Far Eastern Association of Tropical Medicine have recognised the danger of the introduction of Yellow Fever virus into the East, and, by the resolution adopted at their 8th Congress at Bangkok, have endorsed the views expressed by the Advisory Council in Resolution 10 of its 5th Session.

5. The Advisory Council wishes to place on record, on the eve of the departure of Dr. GAUTIER on completion of 4 years' work as Director of the Eastern Bureau, its appreciation of the excellent services he has rendered to the Bureau both by stabilising its organisation and by developing its role in connection with the prevention of disease in the area of the Bureau.

2. The Advisory Council Session was held in Singapore during the last week of December 1930, instead of early in 1931, in order to suit the convenience of several delegates who had been attending the VIII Congress of the Far Eastern Association of Tropical Medicine in Siam earlier in the month.

3. The countries represented were, China, Netherlands East Indies, French Indo-China, Japan, Japanese Colonies, Siam, British India and British Colonies and Dependencies. Australia did not send a delegate. Dr. C. J. WILSON, Principal Medical Officer of the Federated Malay States, Dr. S. B. GRUBBS, Director, United States Public Health Service, Hawaiian Islands, and Dr. R. W. HART, Director, United States Public Health Service, Philippine Islands, were present as Observers. In addition to Dr. GAUTIER, Director of the Eastern Bureau, who is shortly returning to Geneva to take up a post there, Dr. C. L. PARK, an Australian Health Officer, who has been for some years seconded for service with the League of Nations, Director-Designate of the Eastern Bureau, and Dr. T. OUCHI, Deputy Director of the Bureau, were present. Dr. VAN LONKHUYZEN, the Dutch East Indies representative, who was appointed President at the close of the Fifth Annual Meeting of the Council, took the Chair and conducted the business of the meeting ably in the English language.

4. The Report of the Director, with annexes, is to be found on pages 1 to 20, and the minutes of the meetings on pages 21 to 36; the Resolutions adopted are on page 37, and the estimates proposed for the year 1932 on page 38.

5. Though there is a tendency to further increase the scope of the Bureau (page 1), its primary object must always be the collection and dissemination of information about the incidence of infectious disease.

6. It was reported that the Health Committee, Geneva, had appointed a Sub-Commission with limited powers, as an intermediary between itself and the Advisory Council (page 1 and pages 21 - 22).

7. The Director was able to record an improvement in the epidemiological reports received from Chinese ports, owing to the organisation of a national port health administration under the direction of Dr. WU LIEN TEH. It will be remembered that Dr. L. RAJCHMAN, Director of the League of Nations Health Section, headed a health mission to China in 1929, and that the survey of Chinese ports made by him was completed later by Dr. C. L. PARK, now Director-Designate of the Bureau. Dr. PARK assisted Dr. WU LIEN TEH to draw up the Port Quarantine Ordinance and Rules introduced by the Government of China. In addition, Dr. PARK led a study tour of port health officers from Far Eastern administrations to China, and to large Eastern ports outside China, including Singapore, Saigon, Batavia, Hongkong, Manila, Kobe and Yokohama.

8. Better information is being received from South Persian Ports also (pages 2 and 22).

9. The Broadcast in clear, issued daily from the Malabar Station in Java, chiefly for the information of ships, has proved extremely useful—so much so that the question of suppressing the broadcast in Code and using the broadcast in clear for all purposes deserves serious consideration (pages 3, 4, 5, 24 and 25).

10. It is most desirable that the Eastern Bureau should receive prompt telegraphic notice from the Office International of any restrictions imposed against arrivals in Europe from the Far East (pages 7, 8, 25 and 26 and Resolution 3, page 37).

11. The Director presented a useful Epidemiological Study of Cholera in Shanghai, where he spent the month of May, 1930, concerting effective anti-cholera measures with the local health authorities (pages 8, 9 and 26).

12.—(*a*) In view of the rapid increase of the amount and in the speed of international travel by air, the problem of the prevention of the spread of Yellow Fever from infected to uninfected regions is of prime importance.

(*b*) This matter received much attention at the Fifth Session of the Advisory Council—*vide* C. S. 4400/1930 and pages 11 and 12 of the Director's Report for 1929, and also pages 30 - 35 of the Chairman's opening address, pages 54 and 55 for the discussion thereon, and Resolution 9, page 62; *see* also my remarks in Section 6, page 4 of my covering memorandum, in the same paper.

(*c*) It appears from the studies of Hindle that the blood of a person infected with yellow fever is infective before active symptoms appear and for 3 or 4 days after. Infection may take place not only through certain species of mosquitoes, but also direct from man to man; if the blood of the infected person is touched, the virus from it may infect healthy person through the unbroken skin. An infected person may possibly before his own symptoms appear, infect a mosquito. It is stated also that the dejecta of yellow fever infected mosquitoes are for some time infective and that mosquitoes can infect each other. Several other species of mosquitoes, in addition to stegomyia fasciata (to use the old name), have been incriminated as carriers of yellow fever.

(*d*) This subject, therefore, again received very serious consideration (*see* pages 9 and 10 of the Director's report and pages 26 to 28 for the discussion thereon). So far, four Eastern countries, the Philippines, British India, British Malaya and the Dutch East Indies, have introduced legislation against the importation of, and experimentation with, yellow fever virus. (For the action taken in Malaya, *see* C. S. Medical 8838/1930: for the sanitary control of ærial navigation, *see* C. S. 6637/1930). It seems probable that other Eastern countries will shortly introduce similar legislation.

(*e*) The following resolution was passed by the VIII Congress of the Far Eastern Association of Tropical Medicine, at a full meeting in which scientific workers from all parts of the Far East were strongly represented:—

(BANGKOK, DECEMBER, 1930).

The Eighth Congress of the Far Eastern Association of Tropical Medicine, having considered the present scientific position in regard to Yellow Fever, resolves:—

(*a*) That the attention of all administrations concerned be directed to Resolution 10 of the 5th Session of the Advisory Council of the League of Nations Health Organisation, Eastern Bureau, dated February 22, 1930, with which it is generally in agreement.

(*b*) That in view of the increasing dangers of introduction of the disease into areas of the Far East, stringent measures must be adopted against its importation, either through air traffic from infected or suspected areas, or through introduction of the virus for experimental or other purposes.

(*c*) That such measures may mean the interdiction of air traffic from certain areas until adequate protective measures are framed by the Office International d'Hygiene Publique and are in operation and prohibition by law under severe penalty of the importation and possession of the Yellow Fever Virus.

(*f*) Resolution 4 of the Advisory Council (page 37) records its satisfaction at this resolution of the Far Eastern Association of Tropical Medicine which endorses the views already expressed by the Advisory Council in Resolution 10 of its Fifth Session.

13. *Co-ordination of Research*—(*a*) *Bacteriophage*.—The Director put up a full review of the work carried out in the East during 1930. In a previous review, he dealt with the period 1927—1929. It was decided that the collection and recording of information on this subject should be continued (pages 10 and 28).

(*b*) *Pneumonia*.—The Director put up a "Preliminary Study of Tropical Pneumonia" covering some 90 typed pages. The Council was of opinion that this valuable document deserved wide circulation amongst Eastern health administrations and research workers, and that, pending its study, the formation of an expert committee on Pneumonia should be delayed (pages 10, 28 and 29).

(*c*) *Plague*.—Some members expressed regret that the expert Plague Commission formed at the Seventh Congress of the Far Eastern Association of Tropical Medicine at Calcutta in December, 1927 was not convened at the Eighth Congress recently held in Bangkok. It was decided that the Bureau should collect records of the work done in the Eastern area on the lines of the plague research programme, and compile them in a form suitable for circulation to the members of the Plague Commission and for presentation at the next session of the Advisory Council (pages 10, 11, 29, 30 and 31).

(*d*) *Oral Vaccination*.—No further conclusive results have been obtained (pages 11 and 31).

(*e*) *Dry Small-pox vaccine*.—Further satisfactory results were reported from the use of this vaccine (pages 11, 12 and 31).

14. *Plans for further work*.—(*a*) A proposal by the Health Committee sitting at Geneva for the formation of an expert Committee to make a special study of the rice problem in the Far East, was not warmly received by the Council. This subject has been exhaustively dealt with by Beri-beri workers

in Far Eastern countries; results, which merit the attention of the Health Committee, were communicated to the fourth, fifth and sixth congresses of the Far Eastern Association of Tropical Medicine, meeting at Batavia (1921), Singapore (1923) and Tokyo (1925) (pages 13 and 33).

(*b*) The Advisory Council agreed in principle with a proposal of the Health Committee to organise study tours for medical officers in the Pacific Island groups, and to facilitate the attendance of some of them at Congresses of the Far Eastern Association of Tropical Medicine.

15. It was proposed and approved in principle that Observers from some of the Eastern administrations not represented at the Bureau should be invited to attend the next session of the Advisory Council, and it was suggested that their expenses should be met. In this connection, I expressed the view that such officers should have been invited to the present session, as representatives from Hongkong, Macao and British North Borneo had actually been present at the VIII Far Eastern Association of Tropical Medicine Congress in Bangkok a few days previously.

16. *Finance.*—(*a*) The Accounts for the year 1930 are to be found on pages 18 and 19. The estimates for 1931 as approved by the League Assembly, totalling $101,981, are on page 17. The appropriation for 1930 was $99,108, and the actual expenditure $94,168.

(*b*) The estimates for 1932, $112,707, as approved by the Advisory Council for submission to Geneva, are to be found on page 38. The main increases are due to—

(1) The decision of the League to pay the new Director $2,150 a year more than his predecessor.

(2) The substitution of a third medical man on $10,800 for the Statistician on $9,000 a year.

(3) An increase of $1,500 in the travelling expenses of the staff.

(4) An increase of $500 in the item "printing".

(5) A contribution towards a pension fund of 9% of (1931) salaries, $3,510.

(*c*) I recommend that the Governments of the Straits Settlements and of the Federated Malay States should continue their usual annual contribution of $3,000 each.

17. Dr. VAN LONKHUYZEN was re-elected *Chairman*, and Dr. BORIRAKSH, the Siamese representative, was appointed *Vice-Chairman* for 1931 (page 36).

18. Hearty appreciation was expressed of the efficient manner in which Dr. GAUTIER had directed the Bureau during the past four years (page 35 and Resolution 5, page 37).

19. I have been so fortunate as to have attended the conception of the Eastern Bureau, at the international meeting held in Singapore in 1925 under the Chairmanship of Dr. NORMAN WHITE, and to have been present as a member at all the six subsequent annual sessions of the Advisory Council. It is fitting that, on the eve of my retirement, I should bear witness to the very amicable relations that have been maintained by all the members, and to the important international public health advances that have resulted therefrom.

A. L. HOOPS.
Representatives of
British Colonies and Dependencies.

TABLE *I.*

STAFF

1. The authorised number of the European staff of the Medical Department of Straits Settlements in 1930, including officers to be seconded for service in the Unfederated Malay States, was 187.

GENERAL

Principal Civil Medical Officer, Straits Settlements.
Nine Leave Supernumerary Medical and Health Officers.
Accountant, Medical Department, Straits Settlements.

HOSPITALS AND DISPENSARIES

Chief Medical Officer, Singapore.
Secretary, General Hospital, Singapore.
Chief Medical Officer, Penang.
Chief Medical Officer, Malacca.
Senior Surgeon, Singapore.
One Radiologist, Singapore.
Surgeon, Penang.
Eight Medical Officers, Singapore.
Five Medical Officers, Penang.
One Medical Officer, Malacca.
One Dispensing Chemist, Singapore.
One Medical Officer, Labuan.
One Matron, Super-scale, General Hospital, Singapore.
One Matron, Grade I, Singapore.
One Matron, Grade I, Penang.
Four Matrons, Grade II, Singapore.
Two Matrons, Grade II, Penang.
One Matron, Grade II, Malacca.
Forty-three Sisters, Singapore.
Fourteen Sisters, Penang.
One Sister, Malacca.
Two European Attendants, Singapore.
One Lay Superintendent, Leper Settlement, Pulau Jerejak.

HEALTH BRANCH

Chief Health Officer, Singapore.
Senior Health Officer, Penang.
Five Health Officers, Singapore.
One Health Officer, Penang.
One Health Officer, Malacca.
Two Chief Sanitary Inspectors, Singapore and Penang.
One Lay Superintendent, Quarantine Station, Singapore.
Two Public Health Sisters, Singapore.
One Sister, Quarantine Station, Singapore.
One Lay Superintendent, Quarantine Station, Penang.
One Public Health Sister, Penang.
One Public Health Sister, Malacca.

Pathological Branch

One Pathologist, Singapore.

One Pathologist, Penang.

One Bacteriologist, Singapore.

College of Medicine, Singapore

Principal.

Professor of Physiology.

Professor of Anatomy.

Professor of Medicine.

Professor of Surgery.

Professor of Clinical Surgery.

Professor of Midwifery and Gynæcology.

Professor of Bacteriology.

Professor of Biology.

Professor of Bio-chemistry.

Professor of Dental Surgery.

Dental Mechanic.

Janitor.

Mental Hospital, Singapore

Medical Superintendent.

Assistant Medical Superintendent.

One Matron, Grade I.

One Sister.

Four European Attendants.

Social Hygiene Branch

Chief Medical Officer, Singapore.

One Medical Officer, Singapore.

2. In addition, 7 Superscale and 14 Time-scale supernumerary Medical and Health Officers and 2 supernumerary Matrons and 15 supernumerary Nursing Sisters are borne on the establishment for service in the Unfederated Malay States, making a total of 187.

3. The local qualified medical staff (Specialists, Deputy Medical Officers, Deputy Health Officers, Assistant Medical Officers, Assistant Health Officers, etc.), number 73.

TABLE *II*

FINANCIAL

1930

Revenue

	$ c.	$ c.
Singapore—		
Hospitals Board	297,689 34	
Medical General	2,790 00	
Health	28,431 60	
		328,910 94
Penang—		
Hospitals Board	71,980 55	
Payment for Lepers	85,309 27	
Medical General Health	26,198 89	
		183,488 71
Malacca—		
Hospitals Board	19,448 47	
Medical General Health	2,114 50	
		21,562 97
Labuan—	509 90	
		509 90
	Total ...	$534,472 52

1. The revenue collected in the Medical Department is classified under three headings, viz.: —

(*a*) Hospitals Board (Hospitals and Dispensaries).

(*b*) Medical General which includes Medical, Pathological Branch College of Medicine, Singapore, and Mental Hospital.

(*c*) Health Branch.

2. The income from "Hospitals and Dispensaries" and Mental Hospital, Singapore, is paid into the account of the Hospitals Board, which is administered by a Special Committee. In addition to the amounts paid into the Hospitals Board Account as shown above the Board received contributions from Government for the various settlements as follows: —

	$
Singapore	573,250
Penang	374,613
Malacca	96,950
Labuan	3,460
Total ...	$1,048,273

3. No income is derived from the Pathological Branch.

4. Fees collected under Medical General and Health Branch are paid into the Treasury as General Government Revenue.

5. Fees collected under College of Medicine, Singapore, are paid into the College Fund.

1930

EXPENDITURE

	$ c.	$ c.
Singapore—		
Hospitals Board		837,570 14
Medical General (including Pathological Branch)—		
Personal Emoluments	104,183 23	
Other Charges	28,908 85	
College of Medicine—		
Personal Emoluments	190,483 98	
Other Charges	57,925 48	
Health Branch—		
Personal Emoluments	149,064 17	
Other Charges	184,646 51	
Hospitals and Dispensaries (including General Hospital, Tan Tock Seng Hospital, Mental Hospital, Maternity Hospitals and all Out-door Dispensaries)—		
Personal Emoluments	686,864 35	
Other Charges	6,856 35	
Social Hygiene Branch—		
Personal Emoluments	39,430 06	
Other Charges	46,557 12	
Medical Proper, General Clerical Service—		
Personal Emoluments	36,446 23	
Health Branch, Personal Emoluments	6,964 97	
Social Hygiene Personal Emoluments	2,950 00	
		1,541,281 30
	Total ...	$2,378,851 44

	$ c.	$ c.
Penang—		
Hospitals Board		522,906 05
Medical General (including Pathological Branch)—		
Personal Emoluments ...	31,726 62	
Other Charges	4,327 53	
Health Branch—		
Personal Emoluments	91,517 39	
Other Charges	167,137 44	
Social Hygiene Branch—		
Personal Emoluments	5,892 91	
Other Charges	10,964 82	
Hospitals and Dispensaries—		
Personal Emoluments	318,948 45	
Federated Malay States Agency ...	1,873 15	
General Clerical Service—		
Personal Emoluments	18,490 00	
		650,878 31
	Total ...	$1,173,784 36

Malacca—

	$ c.	$ c.
Hospitals Board		107,884 02
Medical General (including Pathological Branch)—		
Personal Emoluments	16,134 71	
Other Charges	3,810 83	
Health Branch—		
Personal Emoluments	20,827 38	
Other Charges	49,582 93	
Social Hygiene Branch—		
Personal Emoluments	5,620 03	
Other Charges	4,672 83	
Hospitals and Dispensaries—		
Personal Emoluments ...	88,765 92	
Medical Proper, General Clerical Service—		
Personal Emoluments	8,210 00	
Health Branch—		
Personal Emoluments	1,920 00	
		199,594 63
	Total ...	$ 307,428 65

Labuan—

	$ c.
Labuan	24,925 66

SUMMARY

	$ c.
Singapore	2,378,851 44
Penang	1,173,784 36
Malacca	307,428 65
Labuan	24,925 66
Grand Total ...	$3,884,990 11

The Other Charges of the Hospitals and Dispensaries are shown under the Hospitals Board Expenditure.

1. The total expenditure of the Medical Department for the Straits Settlements for the year 1930 amounted to $3,884,990.11.

2. Half of the amounts shewn under the head College of Medicine were refunded by the Federated Malay States Government.

TABLE III *A*

ESTIMATED POPULATION, WITH BIRTH AND DEATH-RATES FOR THE YEARS 1929 AND 1930

	POPULATION		BIRTHS		DEATHS		BIRTH-RATIO PER MILLE		DEATH-RATIO PER MILLE	
	Estimated 1929	Estimated 1930	1929	1930	1929	1930	1929	1930	1929	1930
Singapore	574,665	596,209	20,902	21,461	14,851	16,470	36.37	36.00	25.84	27.62
Penang	191,330	196,586	7,346	7,430	5,490	5,242	38.39	37.80	28.69	26.67
Province Wellesley	141,541	144,967	5,515	5,796	3,630	3,702	38.96	39.98	25.65	25.54
Dindings	18,334	19,068	597	692	502	526	32.56	36.29	27.38	27.59
Malacca	200,004	205,820	7,464	9,007	4,904	5,739	37.32	43.76	24.52	27.88
Labuan	6,029	6,156	278	317	167	249	46.11	51.49	27.69	40.45
Total ...	1,131,903	1,168,806	42,102	44,703	29,544	31,928	37.20	38.25	26.10	27.32

TABLE III *B*

QUARTERLY DEATH-RATES FOR VARIOUS PARTS OF THE COLONY DURING THE PAST 3 YEARS WERE:—

YEAR	1928				1929				1930			
Quarter	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Singapore and Labuan ...	25.05	29.49	29.10	27.99	24.38	26.83	26.13	26.09	23.36	31.68	28.35	27.64
Penang Island ...	32.58	38.67	31.80	30.69	29.38	31.07	26.08	28.28	25.79	28.73	26.30	25.85
Province Wellesley	27.87	31.16	30.02	27.89	25.04	27.89	24.25	25.42	22.97	28.61	26.03	24.52
Dindings ...	21.23	25.11	27.31	23.70	26.99	22.31	24.89	35.27	25.31	32.39	30.79	27.47
Malacca ...	23.81	25.97	25.28	27.95	24.94	24.36	22.68	26.10	24.57	34.98	26.31	26.45

TABLE III *C*

Population, Estimated racially and collectively of the Straits Settlements for the years 1930, 1929 and 1928

Settlement or Province	Europeans 1930	Eurasians 1930	Chinese 1930	Malays 1930	Indians 1930	Other Nationalities 1930	Total 1930	Total 1929	Total 1928
Singapore	9,747	7,361	453,432	71,459	44,827	9,383	596,209	574,665	553,366
Penang	1,504	1,898	123,292	41,031	26,766	2,095	196,586	191,330	186,171
Province Wellesley	504	435	36,340	76,739	30,465	484	144,967	141,541	138,230
Dindings	30	36	4,529	7,368	7,082	23	19,068	18,334	17,622
Malacca	624	2,277	58,916	102,340	41,373	290	205,820	200,004	194,342
Labuan	32	17	1,661	4,282	112	52	6,156	6,029	5,904
Total ...	12,441	12,024	678,170	303,219	150,625	12,327	1,168,806	1,131,903	1,095,635

TABLE III *D*

Births registered in the Straits Settlements during 1930 and their Ratio per mille of Population

Settlement or Province	Male	Female	Total 1930	Total 1929	Total 1928	Ratio per mille 1930	Ratio per mille 1929	Ratio per mille 1928
Singapore	11,252	10,209	21,461	20,902	19,332	36.00	36.37	34.94
Penang	3,827	3,603	7,430	7,346	6,874	37.80	38.39	36.92
Province Wellesley	3,001	2,795	5,796	5,515	4,747	39.98	38.96	34.34
Dindings	361	331	692	597	573	36.29	32.56	32.51
Malacca	4,592	4,415	9,007	7,464	7,673	43.76	37.32	39.48
Labuan	171	146	317	278	280	51.49	46.11	47.49
Total ...	23,204	21,499	44,703	42,102	39,479	38.25	37.20	36.03

TABLE III *E*

Births registered in the Straits Settlements during 1930 according to Nationalities

Settlement or Province	Europeans		Eurasians		Chinese		Malays		Indians		Japanese		Other Nationalities		Total	
	No.	Ratio	No.	Ratio	No.	Ratio	No.	Ratio	No.	Ratio	No.	Ratio	No.	Ratio	No.	Ratio
Singapore	167	17.13	194	26.36	16,709	36.85	3,089	43.23	1,144	25.52	101	25.85	57	6.07	21,461	36.00
Penang	72	47.87	44	23.18	4,968	40.29	1,415	34.24	902	33.70	...	...	29	13.84	7,430	37.80
Province Wellesley ...	1	1.98	7	16.09	1,912	52.61	2,773	36.14	1,098	36.04	...	...	5	10.33	5,796	39.98
Dindings	...	...	...	...	178	39.38	329	44.65	184	25.98	...	...	1	43.48	692	36.29
Malacca	9	14.42	87	38.21	2,926	49.66	5,079	49.63	904	21.85	...	...	2	6.90	9,007	43.76
Labuan	...	...	2	117.65	109	65.62	196	45.77	4	35.71	...	...	6	115.38	317	51.49
Total ...	249	20.01	334	27.78	26,802	39.52	12,881	42.48	4,236	28.12	101	23.63	100	8.11	44,703	38.25

TABLE III *F*

Deaths registered in the Straits Settlements in 1930 according to Nationalities

Settlement or Province	Europeans		Eurasians		Chinese		Malays		Indians		Other Nationalities and Unknown		Total	
	No.	Ratio per mille	No.	Ratio per mille	No.	Ratio per mille	No.	Ratio per mille	No.	Ratio per mille	No.	Ratio per mille	No.	Ratio per mille
Singapore	64	6.56	116	15.76	12,987	26.84	2,075	29.04	1,078	24.05	150	15.98	16,470	27.62
Penang	20	13.30	27	14.23	3,281	26.61	984	23.98	906	33.85	24	11.46	5,242	26.67
Province Wellesley	1	1.98	5	11.49	1,137	31.29	1,789	23.31	730	23.96	40	82.64	3,702	25.54
Dindings	...	...	...	...	155	34.22	213	28.90	155	21.89	3	130.43	526	27.59
Malacca	...	...	44	19.32	1,915	32.50	3,068	29.98	709	17.14	3	10.34	5,739	27.88
Labuan	...	...	...	...	67	40.34	177	41.34	...	...	5	96.15	249	40.45
Total ...	85	6.83	192	15.97	19,542	28.82	8,306	27.39	3,578	23.75	225	18.25	31,928	27.32

TABLE III *G*

Deaths registered in the Straits Settlements in 1930 under different groups of Ages

Ages	Singapore	Penang	Province Wellesley	Dindings	Malacca	Labuan	Total
Under 3 months	2,439	642	536	90	1,477	52	5,236
3 months and under 1 year ...	2,155	461	180	36	795	40	3,667
1 year to 5 years	1,573	554	498	77	541	29	3,272
5 years to 10 ,, ...	391	173	160	27	186	7	944
10 ,, 20 ,, ...	613	209	195	28	201	14	1,260
20 ,, 25 ,, ...	916	244	182	27	266	8	1,643
25 ,, 35 ,, ...	2,303	652	449	67	598	17	4,086
35 ,, 45 ,, ...	2,161	702	402	64	557	19	3,905
45 ,, 55 ,, ...	1,766	571	327	37	398	16	3,115
55 ,, 75 ,, ...	1,754	807	548	63	543	28	3,743
75 years and above	382	204	214	10	169	19	998
Unknown	17	23	11	...	8	...	59
Total ...	16,470	5,242	3,702	526	5,739	249	31,928

TABLE III *H*

Table showing the Infantile Mortality (under one year) in the Straits Settlements including children born elsewhere

Settlement	Births	Deaths	Ratio per mille of Births		
			1930	1929	1928
Singapore	21,461	4,637	216.07	196.73	204·32
Penang	7,430	1,100	148.05	160.63	173·41
Province Wellesley	5,796	716	123.53	114.96	133·35
Dindings	692	126	182.08	180.90	160.56
Malacca	9,007	2,278	252.91	247.19	222.34
Labuan	317	92	290.22	223.02	260.71
Total ...	44,703	8,949	200.19	188.61	193·69

TABLE III *I*

Tables showing the Infantile Mortality (children under one year) in the Straits Settlements and Nationalities, Excluding Children born elsewhere

Nationalities	Singapore			Penang			Province Wellesley			Dindings			Malacca			Labuan			Total		
	Deaths	No. born elsewhere	Ratio	Deaths	No. born elsewhere	Ratio	Deaths	No. born elsewhere	Ratio	Deaths	No. born elsewhere	Ratio	Deaths	No. born elsewhere	Ratio	Deaths	No. born elsewhere	Ratio	Deaths	No. born elsewhere	Ratio
Europeans	6	...	35.93	1	...	13.89	...		...	...	...	...	...	...	...	...	...	...	7	...	28.11
Eurasians	36	...	185.57	4	...	90.91	2	1	285 71	...	...	...	19	...	218.39	...	...	...	61	1	182.63
Chinese	3,344	141	200.13	710	50	142.91	187	1	97.80	22	...	123.60	626	7	213.94	28	1	257.01	4,917	200	183.46
Malays	819	40	265.13	178	3	125.79	348	1	125.50	53	2	161.09	1,429	5	281.35	59	2	301.02	2,886	53	224.05
Northern Indians	32	2	183.56	8	11	155.21	1	1	155.74	...	...	222.83	8	1	206.86	...	...	...	...	22	176.82
Southern Indians	178	3		132	..		170	...		41	...		179	4		...	...	...	749		
Japanese	6	...	59.40	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6	...	59.40
Other Nationalities and Unknown ...	28	2	49.10	3	...	103.45	4	...	...	8	...	...	...	...	..	2	...	333.33	45	2	450.00
Total ...	4,449	188	207.32	1,036	64	139.43	712	4	122.84	124	2	177.75	2,261	17	251.02	89	3	280.76	8,671	278	193.94

TABLE III *J*

Deaths registered in the Straits Settlements as regards certificates in the year 1930

Particulars	Singapore	Penang	Province Wellesley	Dindings	Malacca	Labuan	Total
Died in Hospitals	3,341	1,239	390	57	673	10	5,710
Certified by Outside Medical Practitioners	5,358	793	1	...	377	7	6,536
Certified by Registering Officers after death	4,457	2,018	18	...	295	14	6,802
Uncertified	3,314	1,192	3,293	469	4,394	218	12,880
Total ...	16,470	5,242	3,702	526	5,739	249	31,928

TABLE *IV*

Meteorological Returns for the Straits Settlements for the year 1930 and also two graphs showing the wettest and driest years since 1869, and the annual rainfall in inches and millimetres since 1862.

METEOROLOGICAL RETURN FOR THE YEAR 1930

Singapore

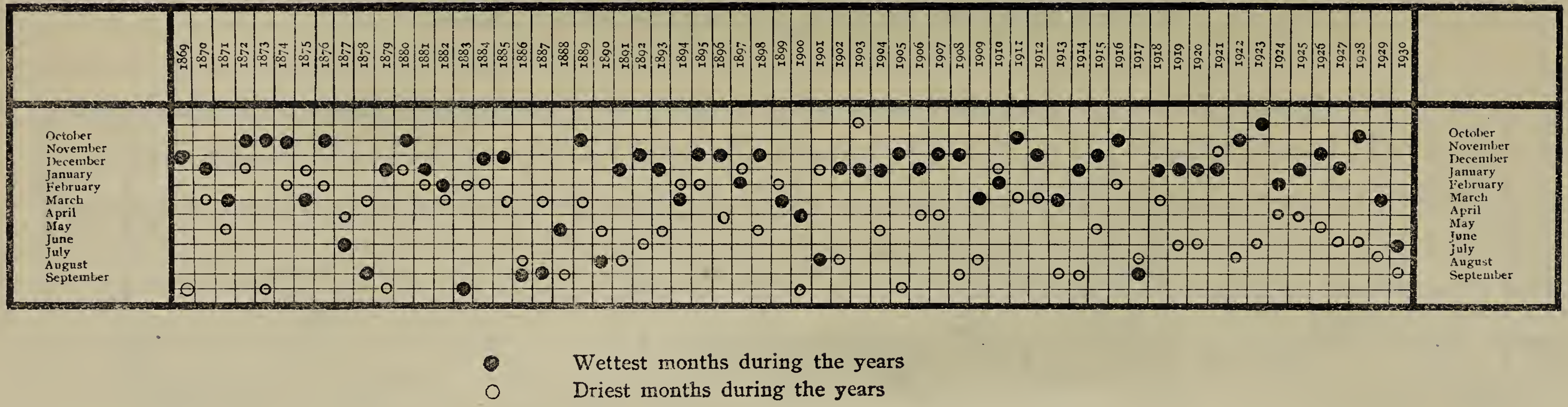
—	TEMPERATURE				RAINFALL		WINDS		REMARKS
	Shade Maximum	Shade Minimum	Range	Mean	Amount in m. m.	Degree of Humidity	General Direction	Average Force	
January ...	86.8	73.2	13.6	80.0	116.9	77	E.N.E.	3	
February ...	88.9	73.2	15.7	81.1	76.0	79	E.N.E.	3	
March ...	88.2	74.5	13.7	81.3	189.7	81	E.N.E.	2–3	
April ...	88.6	75.1	13.5	81.9	187.5	82	E.N.E.	2–3	
May ...	88.5	75.3	13.2	81.9	227.3	82	S.	2–3	
June ...	88.3	75.4	12.9	81.9	320.1	80	S.S.E.	3	
July ...	90.6	77.3	13.5	83.9	71.9	77	S.E.	2–3	
August ...	90.9	77.1	13.8	84.0	35.8	72	S.E.	2–3	
September ...	89.2	74.2	15.0	81.7	119.4	75	S.	2–3	
October ...	87.3	74.2	13.1	80.7	277.1	82	N.N.E.	2–3	
November ...	87.7	74.5	13.2	81.1	242.3	79	N.E.	2–3	
December ...	87.4	73.8	13.6	80.6	249.9	78	W.	2–3	
Mean ...	88.5	74.8	13.7	81.7	2,113.9	78.7			

METEOROLOGICAL RETURN FOR THE YEAR 1930

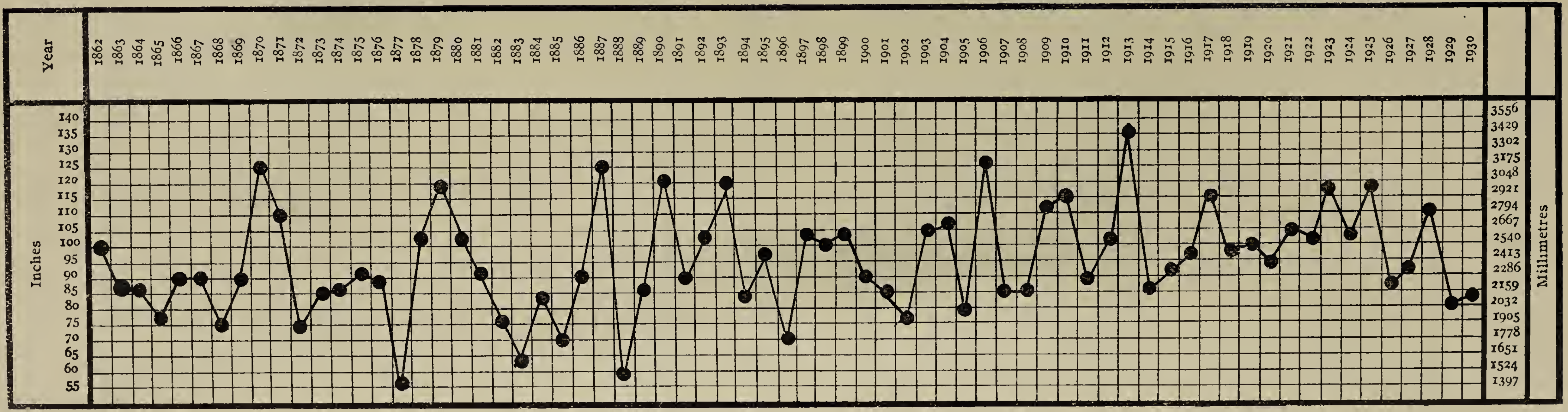
Penang

—	TEMPERATURE				RAINFALL		WINDS		REMARKS
	Shade Maximum	Shade Minimum	Range	Mean	Amount in m.m.	Degree of Humidity	General Direction	Average Force	
January ...	92.1	76.8	15.3	84.5	121.0	81	N.	1–2	
February ...	91.4	76.5	14.9	83.9	57.0	79	N.	1–2	
March ...	91.7	78.5	13.2	85.1	115.0	79	N.	1–2	
April ...	91.6	79.2	12.4	85.5	127.0	81	S.	1–2	
May ...	92.0	76.9	15.1	84.5	222.0	75	N.W.	1	
June ...	90.6	75.1	15.5	82.9	99.1	71	N.	1	
July ...	90.3	75.0	15.3	82.7	266.5	71	S.	1–2	
August ...	90.2	74.8	15.4	82.5	150.4	73	W.	1–2	
September ...	88.3	74.0	14.3	81.1	472.7	77	N.	1–2	
October ...	88.8	74.7	14.1	81.7	440.2	79	N.E.	1–2	
November ...	89.3	74.0	15.3	81.7	169.2	79	N.	0–1	
December ...	89.5	74.0	15.5	81.7	177.3	75	N.	1–2	
Mean ...	90.5	75.8	14.7	83.1	2,417.4	76.7			

SHOWING THE WETTEST AND DRIEST MONTHS DURING THE SAME YEARS



SHOWING THE ANNUAL RAINFALL IN INCHES AND MILLIMETRES SINCE 1862



METEOROLOGICAL RETURN FOR THE YEAR 1930

Malacca

—	TEMPERATURE				RAINFALL		WINDS		REMARKS
	Shade Maximum	Shade Minimum	Range	Mean	Amount in m.m.	Degree of Humidity	General Direction	Average Force.	
January	88.0	76.0	12.0	82.0	31.3	77	N.E.	2–3	
February	89.4	73.5	15.9	81.5	83.3	73	N.E.	2–3	
March	88.3	74.5	13.8	81.4	246.9	80	N.E.	1–2	
April	87.0	74.5	12.5	80.7	250.0	82	E.N.E.	1–2	
May	86.0	74.7	11.3	80.3	199.1	80	S.W.	1–2	
June	85.6	73.9	11.7	79.7	257.8	81	S.	1–2	
July	85.8	74.0	11.8	79.9	217.4	80	E.	2	
August	85.5	73.2	12.3	79.3	100.3	78	E.	2	
September	84.8	73.2	11.6	79.0	252.7	80	W.	2	
October	84.2	73.3	10.9	78.7	143.3	83	N.E.	2	
November	84.7	73.5	11.2	79.1	169.2	83	N.N.E.	2	
December	84.9	73.6	11.3	79.3	207.0	84	N.N.E.	2	
Mean ...	86.2	74.0	12.2	80.1	2158.3	80.1			

METEOROLOGICAL RETURN FOR THE YEAR 1930

Labuan

—	TEMPERATURE				RAINFALL		WINDS		REMARKS
	Shade Maximum	Shade Minimum	Range	Mean	Amount in m.m.	Degree of Humidity	General Direction	Average Force	
January	87.6	76.4	11.2	82.0	138.5	74	N.E.	...	
February	86.9	75.5	11.4	81.2	40.0	77	N.E.		
March	89.7	73.8	15.9	81.7	65.0	72	N.E.	...	
April	90.3	62.9	27.4	76.6	263.5	81	N.E.	...	
May	92.4	62.0	30.4	77.2	284.0	72	S.	...	
June	91.7	66.0	25.7	79.1	389.5	78	S.	...	
July	89.2	80.7	8.5	84.9	90.0	72	S.	...	
August	86.5	77.2	9.3	81.9	336.0	72	S.E.	...	
September	86.7	73.6	13.1	80.1	276.0	74	S.	...	
October	84.7	72.9	11.8	78.8	502.0	77	W.	...	
November	85.7	77.9	7.8	81.8	561.0	77	S.	...	
December	83.1	78.3	4.8	80.7	371.0	76	S.	...	
Mean ...	87.9	73.1	14.8	80.5	3,316.5	75.2		...	

TABLE V

HOSPITALS OR INSTITUTIONS STRAITS SETTLEMENTS

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1930.

DISEASES	*Remaining in Hospital at end of 1929	YEARLY TOTAL		†Total Cases Treated	‡Remaining in Hospital at end of 1930	REMARKS
		Admissions	Deaths			
I.—EPIDEMIC, ENDEMIC, AND INFECTIOUS DISEASES						
1. Enteric Group—						
(*a*) Typhoid Fever ..	12	219	89	231	18	
(*b*) Paratyphoid ...	1	9	...	10	1	
2. Typhus	...	...	...	...	...	
3. Relapsing Fever ...	...	...	...	...	...	
4. Undulant Fever ...	...	...	...	...	...	
5. Malaria—						
(*a*) Tertian ...	58	2,707	74	2,771	41	
(*b*) Quartan ...	16	418	16	432	11	
(*c*) Aestivo-autumnal	177	6,338	715	6,515	122	
(*d*) Cachexia ...	15	779	17	794	18	
(*e*) Blackwater Fever	...	16	3	16	1	
(*f*) Unclassified ...	73	2,807	163	2,880	57	
(*g*) Mixed Infection	8	458	31	462	5	
6. Small-pox	...	148	23	148	19	
7. Measles	2	47	1	49	...	
8. Scarlet Fever ...	...	...	...	...	...	
9. Whooping Cough ...	...	17	1	17	...	
10. Diphtheria ...	...	41	14	41	...	
11. Influenza	8	600	20	608	10	
12. Miliary Fever ...	...	...	...	...	...	
13. Mumps	1	69	...	70	...	
14. Cholera	...	...	...	...	...	
15. Epidemic Diarrhœa ...	...	...	...	...	...	
16. Dysentery—						
(*a*) Amœbic ...	27	478	159	505	16	
(*b*) Bacillary ...	5	379	131	383	32	
(*c*) Undefined or due to other causes	2	211	36	214	6	
Carried forward ...	405	15,741	1,493	16,146	357	

The form shows in the main the arrangement of diseases in the *International Nomenclature, 1921 Edition*. To save space the unimportant diseases of any class can be grouped in their places as "Other Diseases" of the Class.

* *i.e.* the year previous to that for which the return is made

† "Total cases treated" will, of course, include those remaining in Hospital at the end of the previous year

‡ The figures in this column to be carried on to the next year's Return.

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1930—*Contd.*

DISEASES	Remaining in Hospital at end of 1929	YEARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1930	REMARKS
		Admissions	Deaths			
Brought forward ...	405	15,741	1,493	16,146	357	
I.—EPIDEMIC, ENDEMIC AND INFECTIOUS DISEASES.—*Continued*						
17. Plague—						
(*a*) Bubonic ...	...	...	...	...	...	
(*b*) Pneumonic ...	...	...	...	...	...	
(*c*) Septicæmic ...	...	...	...	...	...	
(*d*) Undefined ...	...	...	...	...	...	
18. Yellow Fever ...	...	...	...	...	...	
19. Spirochætosis Icterohæmorrhagica ...	...	...	...	...	...	
20. Leprosy	1,012	536	146	1,548	1,034	
21. Erysipelas	1	14	3	15	...	
22. Acute Poliomyelitis ...	...	2	...	2	...	
23. Encephalitis Lethargica	...	...	...	...	...	
24. Epidemic Cerebrospinal Fever ...	...	29	7	29	...	
25. Other Epidemic Diseases—						
(*a*) Rubeola (German Measles) ...	...	...	...	...	...	
(*b*) Varicella (Chickenpox) ...	2	92	...	94	5	
(*c*) Kala-azar ...	...	...	...	...	...	
(*d*) Phlebotomus Fever ...	...	...	...	...	...	
(*e*) Dengue ...	3	99	...	102	1	
(*f*) Epidemic Dropsy	...	...	...	...	...	
(*g*) Yaws ...	1	41	...	42	2	
(*h*) Trypanosomiasis	...	...	...	...	...	
26. Glanders	...	...	...	...	...	
27. Anthrax ...	...	...	...	...	...	
28. Rabies	...	...	...	...	...	
29. Tetanus	2	69	49	71	3	
30. Mycosis	...	...	...	...	...	
31. Tuberculosis, Pulmonary and Laryngeal ...	220	2,010	966	2,230	194	
32. Tuberculosis of the Meninges or Central Nervous System ...	1	43	25	44	4	
33. Tuberculosis of the Intestines or Peritoneum	...	22	7	22	2	
34. Tuberculosis of the Vertebral Column ...	7	21	5	28	10	
Carried forward ...	1,654	18,719	2,701	20,373	1,612	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1930—*Contd.*

DISEASES	Remaining in Hospital at end of 1929	YEARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1930	REMARKS
		Admissions	Deaths			
Brought forward ...	1,654	18,719	2,701	20,373	1,612	
I.—EPIDEMIC, ENDEMIC, AND INFECTIOUS DISEASES.—*Concluded*						
35. Tuberculosis of Bones and Joints ...	7	43	4	50	13	
36. Tuberculosis of other organs—						
(*a*) Skin or Subcutaneous Tissue (Lupus)	...	...	...	...	...	
(*b*) Bones ...	...	5	...	5	...	
(*c*) Lymphatic System	4	31	3	35	...	
(*d*) Genito-urinary ...	1	3	...	4	...	
(*e*) Other organs ...	...	11	...	11	3	
37. Tuberculosis disseminated—						
(*a*) Acute ...	...	1	1	1	...	
(*b*) Chronic ...	...	7	5	7	...	
38. Syphilis—						
(*a*) Primary ...	59	804	...	863	28	
(*b*) Secondary ...	138	1,805	5	1,943	210	
(*c*) Tertiary ...	62	350	53	412	38	
(*d*) Hereditary ...	2	34	12	36	2	
(*e*) Period not indicated ...	2	78	95	80	3	
39. Soft Chancre ...	21	545	...	566	31	
40. A.—Gonorrhœa and its complications ...	40	843	2	883	63	
B.—Gonorrhœal Ophthalmia ...	4	46	...	50	8	
C.—Gonorrhœal Arthritis	19	189	1	208	11	
D.—Granuloma Venereum	...	...	...	...	...	
41. Septicæmia ...	1	117	96	118	3	
42. Other Infectious Diseases—	1	22	2	23	...	
II.—GENERAL DISEASES NOT MENTIONED ABOVE						
43. Cancer or other malignant Tumours of the Buccal Cavity ...	4	35	8	39	2	
44. Cancer or other malignant Tumours of the Stomach or Liver ...	4	70	49	74	5	
Carried forward ...	2,023	23,758	3,037	25,781	2,032	

Return of Diseases and Deaths (In-patients) for the year 1930—*Contd.*

Diseases	Remaining in Hospital at end of 1929	Yearly Total		Total Cases Treated	Remaining in Hospital at end of 1930	Remarks
		Admissions	Deaths			
Brought forward ...	2,023	23,758	3,037	25,781	2,032	
II.—General Diseases not mentioned above.—*Continued*						
45. Cancer or other malignant Tumours of the Peritoneum, Intestines, Rectum	1	32	17	33	2	
46. Cancer or other malignant Tumours of the Female Genital Organs	2	34	12	36	1	
47. Cancer or other malignant Tumours of the Breast	2	15	5	17	2	
48. Cancer or other malignant Tumours of the Skin	6	63	4	69	7	
49. Cancer or other malignant Tumours of Organs not Specified	6	73	30	79	3	
50. Tumours non-malignant	10	90	1	100	...	
51. Acute Rheumatism ...	8	100	...	108	5	
52. Chronic Rheumatism ...	2	23	...	25	1	
53. Scurvy (including Barlow's Disease) ...	...	...	...	...	...	
54. Pellagra	1	5	...	6	2	
55. Beri-beri	146	1,303	239	1,449	148	
56. Rickets	...	1	...	1	...	
57. Diabetes (not including Insipidus) ...	3	82	12	85	7	
58. Anæmia— ...						
(*a*) Pernicious ...	3	73	18	76	4	
(*b*) Other Anæmias and Chlorosis ...	3	97	28	100	10	
59. Diseases of the Pituitary Body ...	...	2	...	2	...	
60. Diseases of the Thyroid Gland—						
(*a*) Exophthalmic Goitre ...	1	5	1	6	...	
(*b*) Other diseases of the Thyroid Gland, Myxœdema	1	4	2	5	...	
61. Diseases of the Parathyroid Glands ...	...	...	...	...	...	
62. Diseases of the Thymus	...	2	...	2	...	
63. Diseases of the Suprarenal Glands ...	...	1	...	1	...	
64. Diseases of the Spleen	...	8	2	8	...	
Carried forward ..	2,218	25,771	3,408	27,989	2,224	

Return of Diseases and Deaths (In-patients) for the year 1930—*Contd.*

Diseases	Remaining in Hospital at end of 1929	Yearly Total		Total cases Treated	Remaining in Hospital at end of 1930	Remarks
		Admissions	Deaths			
Brought forward ...	2,218	25,771	3,408	27,989	2,224	
II.—General Diseases not mentioned above.—*Concluded*						
65. Leukæmia—						
(*a*) Leukæmia ...	...	9	5	9	1	
(*b*) Hodgkin's Disease	1	3	...	4	1	
66. Alcoholism ...	2	141	1	143	1	
67. Chronic poisoning by mineral substances (lead, mercury, etc.)	...	23	1	23	...	
68. Chronic poisoning by organic substances (Morphia, Cocaine, etc.)	4	321	1	325	3	
(*a*) Opium Habit ...	30	1,293	...	1,323	22	
69. Other General Diseases—						
Auto-intoxication ...	...	...	...	...	...	
Purpura Hæmorrhagica	...	3	1	3	...	
Hæmophilia ...	...	...	...	...	...	
Diabetes Insipidus ...	...	1	...	1	...	
III.—Affections of the Nervous System and Organs of the Senses						
70. Encephalitis (not including Encephalitis Lethargica) ...	...	6	2	6	...	
71. Meningitis (not including Tuberculous Meningitis or Cerebro-spinal Meningitis) ...	...	30	25	30	...	
72. Locomotor Ataxia ...	1	11	...	12	6	
73. Other Affections of the Spinal Cord ...	5	44	2	49	4	
74. Apoplexy—						
(*a*) Hæmorrhage ...	1	22	17	23	1	
(*b*) Embolism ...	...	2	2	2	...	
(*c*) Thrombosis ...	1	6	3	7	1	
75. Paralysis—						
(*a*) Hemiplegia ...	44	102	12	146	39	
(*b*) Other Paralyses	24	61	2	85	24	
76. General Paralysis of the Insane	18	26	9	44	25	
77. Other forms of Mental Alienation ...	1,068	783	108	1,851	1,172	
Carried forward ...	3,417	28,658	3,599	32,075	3,524	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1930—*Contd.*

DISEASES	Remaining in Hospital at end of 1929	YEARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1930	REMARKS
		Admissions	Deaths			
Brought forward ...	3,417	28,658	3,599	32,075	3,524	
III.—AFFECTIONS OF THE NERVOUS SYSTEM AND ORGANS OF THE SENSES.—*Continued*						
78. Epilepsy	1	75	2	76	6	
79. Eclampsia, Convulsions (non-puerperal) 5 years or over ...	...	5	4	5	...	
80. Infantile Convulsions	...	67	45	67	...	
81. Chorea	2	1	...	3	1	
82. A.—Hysteria ...	...	25	...	25	...	
B.—Neuritis ...	18	178	...	196	9	
C.—Neurasthenia ...	3	39	..	42	4	
83. Cerebral Softening ...	...	1	1	1	...	
84. Other affections of the Nervous System, such as Paralysis Agitans	1	38	2	39	5	
85. Affections of the Organs of Vision—						
(*a*) Diseases of the Eye ...	3	133	1	136	6	
(*b*) Conjunctivitis ..	15	428	..	443	11	
(*c*) Trachoma ...	5	113	...	118	8	
(*d*) Tumours of the Eye ..	1	27	...	28	2	
(*e*) Other affections of the Eye ...	191	437	1	628	184	
86. Affections of the Ear or Mastoid Sinus ...	9	219	5	228	9	
IV.—AFFECTIONS OF THE CIRCULATORY SYSTEM						
87. Pericarditis ...	...	19	8	19	...	
88. Endocarditis ...	2	35	24	37	1	
89. Angina Pectoris ...	...	...	...	...	...	
90. Other Diseases of the Heart—						
(*a*) Valvular—	8	41	12	49	1	
Mitral ..	13	92	29	105	11	
Aortic ...	4	66	36	70	5	
Tricuspid ...	...	...	...	...	...	
Pulmonary ...	...	4	...	4	...	
(*b*) Myocarditis ...	1	120	58	121	7	
Carried forward ...	3,694	30,821	3,827	34,515	3,794	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1930—*Contd.*

DISEASES	Remaining in Hospital at end of 1929	YEARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1930	REMARKS
		Admissions	Deaths			
Brought forward ...	3,694	30,821	3,827	34,515	3,794	
IV.—AFFECTIONS OF THE CIRCULATORY SYSTEM—*Continued*						
91. Diseases of the Arteries—						
(*a*) Aneurism ...	5	28	13	33	2	
(*b*) Arterio-Sclerosis	2	62	41	64	9	
(*c*) Other diseases ...	...	4	...	4	...	
92. Embolism or Thrombosis (non-cerebral) ...	...	1	1	1	...	
93. Diseases of the Veins—						
Hæmorrhoids ...	8	185	...	193	7	
Varicose Veins ...	...	18	...	18	1	
Phlebitis	...	6	...	6	...	
94. Diseases of the Lymphatic System—						
Lymphangitis ...	1	6	...	7	1	
Lymphadenitis, Bubo (non-specific) ...	28	226	...	254	6	
95. Hæmorrhage of undetermined cause ...	...	2	2	2	...	
96. Other affections of the Circulatory System ...	...	66	11	66	4	
V.—AFFECTIONS OF THE RESPIRATORY SYSTEM						
97. Diseases of the Nasal Passages—						
Adenoids ...	1	35	...	36	...	
Polypus	2	23	...	25	2	
Rhinitis	1	14	...	15	2	
Coryza	...	55	...	55	...	
98. Affections of the Larynx—						
Laryngitis ...	1	17	...	18	...	
99. Bronchitis—						
(*a*) Acute ...	41	998	6	1,039	41	
(*b*) Chronic ...	41	564	7	605	30	
100. Broncho-Pneumonia ...	6	520	330	526	17	
101. Pneumonia—						
(*a*) Lobar ...	27	775	440	802	14	
(*b*) Unclassified ...	1	45	15	46	3	
102. Pleurisy, Empyema ...	4	122	18	126	8	
Carried forward ...	3,863	34,593	4,711	38,456	3,941	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1930—*Contd.*

DISEASES	Remaining in Hospital at end of 1929	YEARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1930	REMARKS
		Admissions	Deaths			
Brought forward ...	3,863	34,593	4,711	38,456	3,941	
V.—AFFECTIONS OF THE RESPIRATORY SYSTEM—*Continued*						
103. Congestion of the Lungs	...	...	...	...	...	
104. Gangrene of the Lungs	...	3	3	3	...	
105. Asthma	35	508	6	543	40	
106. Pulmonary Emphysema	1	10	1	11	...	
107. Other affections of the Lungs—						
Pulmonary Spirochætosis ...	5	22	6	27	1	
VI.—DISEASES OF THE DIGESTIVE SYSTEM						
108. A.—Diseases of Teeth or Gums—						
Caries, Pyorrhœa, etc. ...	2	293	...	295	8	
B.—Other affections of the Mouth—						
Stomatitis ...	...	17	1	17	...	
Glossitis, etc. ...	...	33	5	33	2	
109. Affections of the Pharynx or Tonsils—						
Tonsillitis ...	6	540	2	546	8	
Pharyngitis ...	1	121	1	122	1	
110. Affections of the Œsophagus	...	15	1	15	...	
111. A.—Ulcer of the Stomach ...	6	105	19	111	11	
B.—Ulcer of the Duodenum ...	10	31	4	41	3	
112. Other affections of the Stomach—						
Gastritis	9	280	1	289	13	
Dyspepsia, etc. ...	6	281	...	287	6	
113. Diarrhœa and Enteritis—						
Under two years ...	1	363	124	364	2	
114. Diarrhœa and Enteritis—						
Two years and over	31	906	76	937	21	
Colitis	3	85	1	88	1	
Ulceration ...	...	...	...	...	...	
114A. Sprue	...	11	1	11	...	
Carried forward ...	3,979	38,217	4,963	42,196	4,058	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1930—*Contd.*

DISEASES	Remaining in Hospital at end of 1929	YEARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1930	REMARKS
		Admissions	Deaths			
Brought forward ...	3,979	38,217	4,963	42,196	4,058	
VI.—DISEASES OF THE DIGESTIVE SYSTEM.—*Continued*						
115. Ankylostomiasis ...	130	2,756	55	2,886	103	
116. Diseases due to Intestinal Parasites—						
(*a*) Cestoda (Tænia)	...	12	...	12	1	
(*b*) Trematoda (Flukes) ...	...	...	...	...	...	
(*c*) Nematoda (other than Ankylostoma)—						
Ascaris ...	30	665	2	695	19	
Trichocephalus dispar ...	...	...	...	...	...	
Trichina ...	...	10	...	10	...	
Dracunculus	...	5	...	5	...	
Strongylus ...	...	...	...	...	...	
Oxyuris ...	...	5	...	5	...	
(*d*) Coccidia ...	...	...	...	...	...	
(*e*) Other parasites ...	...	18	...	18	1	
(*f*) Unclassified ...	..	4	...	4	...	
117. Appendicitis ...	11	187	8	198	12	
118. Hernia	12	205	4	217	9	
119. A.—Affections of the Anus, Fistula, etc.	15	279	1	294	11	
B.—Other affections of the Intestines—	3	118	18	121	4	
Enteroptosis ...	...	...	...	...	...	
Constipation ...	1	100	...	101	1	
120. Acute Yellow Atrophy of the Liver ...	...	2	2	2	...	
121. Hydatid of the Liver ...	...	...	...	...	...	
122. Cirrhosis of the Liver—						
(*a*) Alcoholic ...	2	7	1	9		
(*b*) Other forms ...	26	247	107	273	22	
123. Biliary Calculus ...	...	5	...	5	...	
124. Other affections of the Liver—						
Abscess	1	34	12	35	2	
Hepatitis	2	46	2	48	2	
Cholecystitis, Cholangitis, etc. ...	1	85	27	86	4	
Jaundice	3	87	6	90	2	
Carried forward ...	4,216	43,094	5,218	47,310	4,251	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1930—*Contd.*

DISEASES	Remaining in Hospital at end of 1929	YEARLY TOTAL Admissions	YEARLY TOTAL Deaths	Total Cases Treated	Remaining in Hospital at end of 1930	REMARKS
Brought forward ...	4,216	43,094	5,218	47,310	4,251	
VI.—DISEASES OF THE DIGESTIVE SYSTEM.—*Concluded*						
125. Diseases of the Pancreas	...	3	2	3	...	
126. Peritonitis (of unknown cause)	...	47	39	47	...	
127. Other affections of the Digestive System ...	8	61	9	69	3	
VII.—DISEASES OF THE GENITO-URINARY SYSTEM (NON-VENEREAL)						
128. Acute Nephritis ...	35	406	45	441	13	
129. Chronic	26	415	143	441	38	
130. A.—Chyluria ...	...	...	..	...	...	
B.—Schistosomiasis ...	...	...	...	...	...	
131. Other affections of the Kidneys—Pyelitis, etc. ...	13	237	28	250	5	
132. Urinary Calculus ...	2	42	1	44	3	
133. Diseases of the Bladder—	1	12	...	13	3	
Cystitis	4	68	9	72	5	
134. Diseases of the Urethra—						
(*a*) Stricture ...	6	94	3	100	5	
(*b*) Other ...	19	282	2	301	2	
135. Diseases of the Prostate—						
Hypertrophy ...	...	1	...	1	...	
Prostatitis, etc. ...	...	18	...	18	...	
136. Diseases (non-venereal) of the Genital Organs of Man—						
Epididymitis ...	2	82	...	84	2	
Orchitis	4	68	...	72	3	
Hydrocele ...	2	154	...	156	6	
Ulcer of Penis, etc. ...	7	91	...	98	4	
137. Cysts or other non-malignant Tumours of the Ovaries ...	3	33	...	36	1	
138. Salpingitis—	...	38	4	38	1	
Abscess of the Pelvis	...	15	1	15	...	
Carried forward ...	4,348	45,261	5,504	49,609	4,345	

Return of Diseases and Deaths (In-patients) for the year 1930—*Contd.*

Diseases	Remaining in Hospital at end of 1929	Yearly Total		Total Cases Treated	Remaining in Hospital at end of 1930	Remarks
		Admissions	Deaths			
Brought forward ...	4,348	45,261	5,504	49,609	4,345	
VII.—Diseases of the Genito-urinary System (non-Venereal.—*Contd.*						
139. Uterine Tumours (non-malignant) ...	1	4	...	5	...	
140. Uterine Hæmorrhage (non-puerperal) ...	...	2	...	2	...	
141. A.—Metritis ...	...	36	...	36	1	
B.—Other affections of the Female Genital Organs—	6	92	...	98	5	
Displacements of Uterus ...	1	22	...	23	2	
Amenorrhœa ...	...	13	...	13	1	
Dysmenorrhœa	1	11	...	12	...	
Leucorrhœa ...	1	22	...	23	3	
142. Diseases of the Breast (non-puerperal)—						
Mastitis	...	11	...	11	2	
Abscess of Breast ..	...	17	...	17	...	
VIII.—Puerperal State						
143. A.—Normal Labour ...	84	4,035	...	4,119	84	
B. Accidents of Pregnancy— ...	...	...	...	...	...	
(*a*) Abortion ...	2	70	1	72	...	
(*b*) Ectopic Gestation ...	...	12	1	12	...	
(*c*) Other accidents of Pregnancy	...	430	8	430	2	
144. Puerperal Hæmorrhage	...	81	12	81	...	
145. Other accidents of Parturition ...	1	148	8	149	...	
146. Puerperal Septicæmia	...	51	26	51	...	
147. Phlegmasia Dolens ...	...	...	...	...	...	
148. Puerperal Eclampsia ...	...	23	9	23	...	
149. Sequelæ of Labour ...	...	185	5	185	...	
150. Puerperal affections of the Breast ...	...	2	...	2	...	
IX.—Affections of the Skin and Cellular Tissues						
151. Gangrene	3	40	14	43	3	
Carried forward ...	4,448	50,568	5,588	55,016	4,448	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1930—*Contd.*

DISEASES	Remaining in Hospital at end of 1929	YEARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1930	REMARKS
		Admissions	Deaths			
Brought forward ...	4,448	50,568	5,588	55,016	4,448	
IX.—AFFECTIONS OF THE SKIN AND CELLULAR TISSUES —*Continued*						
152. Boil—	...	89	3	89	4	
Carbuncle ...	1	64	1	65	4	
153. Abscess—	45	1,143	17	1,188	46	
Whitlow	1	62	..	63	..	
Cellulitis	28	413	20	441	27	
154. A.—Tinea ...	2	78	...	80	1	
B.—Scabies ...	17	388	...	405	19	
155. Other Diseases of the Skin—	19	289	2	308	9	
Erythema ...	...	12	...	12	...	
Urticaria	...	14	...	14	1	
Eczema	15	343	...	358	9	
Herpes	1	37	...	38	1	
Psoriasis	2	6	...	8	1	
Elephantiasis ...	6	17	...	23	3	
Myiasis	...	...	...	...	...	
Chigo	...	...	...	...	...	
Cutaneous Leishmaniasis ...	...	...	...	...	...	
Ulcers	311	4,243	30	4,554	253	
X.—DISEASES OF BONES AND ORGANS OF LOCOMOTION (OTHER THAN TUBERCULOUS)						
156. Diseases of Bones— Osteitis	4	23	...	27	1	
157. Diseases of Joints ...	...	...	...	...	...	
Arthritis	18	345	1	363	25	
Synovitis	2	31	...	33	1	
158. Other Diseases of Bones or Organs of Locomotion	12	178	9	190	14	
XI.—MALFORMATIONS						
159. Malformations—						
Hydrocephalus ...	...	4	1	4	1	
Hypospadias ...	...	2	...	2	...	
Spina Bifida, Imperforate Anus, etc. ...	1	37	9	38	1	
Carried forward ...	4,933	58,386	5,681	63,319	4,869	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1930—*Contd.*

DISEASES	Remaining in Hospital at end of 1929	YEARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1930	REMARKS
		Admissions	Deaths			
Brought forward ...	4,933	58,386	5,681	63,319	4,869	
XII.—DISEASES OF INFANCY						
160. Congenital Debility ...	...	3	3	3	...	
161. Premature Birth ...	...	19	17	19	...	
162. Other affections of Infancy ...	...	10	4	10		
163. Infant neglect (infants of three months or over) ...	...	2	2	2	...	
XIII.—AFFECTIONS OF OLD AGE						
164. Senility ...	60	236	76	296	44	
Senile Dementia ...	...	4	...	4	...	
XIV.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES						
165. Suicide by Poisoning ...	...	3	2	3	...	One attempted suicide
166. Corrosive Poisoning (intentional) ...	...	6	...	6	...	
167. Suicide by Gas Poisoning ...	...	...	...	...	...	
168. Suicide by Hanging or Strangulation ...	...	3	3	3	...	
169. Suicide by Drowning ...	...	4	1	4	...	Three attempted suicide
170. Suicide by Firearms ...	...	...	...	...	...	
171. Suicide by cutting or stabbing Instruments	...	10	4	10	...	Six attempted suicide
172. Suicide by jumping from a height ...	...	...	...	...	...	
173. Suicide by crushing ...	...	...	...	...	...	
174. Other Suicides ...	...	4	...	4	...	Attempted suicide
175. Food Poisoning Botulism ...	...	10	...	10	...	
176. Attacks of poisonous animals—						
Snake bite ...	...	20	1	20	1	
Insect bite ...	...	16	...	16	...	
177. Other accidental poisonings ...	...	32	13	32	...	
178. Burns (by Fire) ...	7	103	9	110	1	
179. Burns (other than by Fire) ...	5	96	2	101	...	
180. Suffocation (accidental) ...	...	80	8	80	...	
181. Poisoning by Gas (accidental) ...	...	...	...	...	...	
182. Drowning (accidental)	1	2	...	3	2	
Carried forward ...	5,006	59,049	5,826	64,055	4,918	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1930—*Contd.*

DISEASES	Remaining in Hospital at end of 1929	YEARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1930	REMARKS
		Admissions	Deaths			
Brought forward ...	5,006	59,049	5,826	64,055	4,918	
XIV.—AFFECTIONS PRODUCED BY EXTERNAL CAUSES.—*Continued*						
183. Wounds (by Firearms, war excepted) ...	...	26	...	26	...	
184. Wounds (by cutting or stabbing Instruments)	36	891	20	927	37	
185. Wounds (by Fall) ...	43	1,408	11	1,451	32	
186. Wounds (in Mines or Quarries) ...	...	1	..	1	1	
187. Wounds (by Machinery)	6	164	...	170	5	
188. Wounds (crushing, *e.g.* Motor Cars, Railway Accidents, &c.) ...	17	1,053	35	1,070	23	
189. Injuries inflicted by Animals, Bites, Kicks, &c.	1	81	...	82	4	
190. Wounds inflicted on Active Service ...	...	...	...	...	..	
191. Executions of civilians by Hangmen ...	...	...	...	...	..	
192. A.—Over fatigue ...	2	113	...	115	3	
B.—Hunger or Thirst	...	...	..	..	...	
193. Exposure to Cold, Frost bite, &c ...	...	7	...	7	2	
194. Exposure to Heat—						
Heatstroke ..	...	1	...	1	..	
Sunstroke ...	...	1	...	1	...	
195. Lightning Stroke ...	...	...	...	...	...	
196. Electric Shock ...	...	2	1	2	...	
197. Murder by Firearms ..	...	..	...	...	...	
198. Murder by cutting or stabbing Instruments	...	..	...	...	...	
199. Murder by other means	...	...	...	...	...	
200. Infanticide (Murder of an infant under one year)	...	...	...	...	...	
201. A.—Dislocation ...	4	78	...	82	5	
B.—Sprain ..	4	146	...	150	2	
C.—Fracture ...	92	922	88	1,014	87	
202. Other external injuries	49	1,082	2	1,131	25	
203. Deaths by Violence of unknown cause ..	...	...	...	...	...	
Carried forward ..	5,260	65,025	5,983	70,285	5,144	

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1930—*Concluded.*

DISEASES	Remaining in Hospital at end of 1929	YEARLY TOTAL		Total Cases Treated	Remaining in Hospital at end of 1930	REMARKS
		Admissions	Deaths			
Brought forward ...	5,260	65,025	5,983	70,285	5,144	
XV.—ILL-DEFINED DISEASES						
204. Sudden Death (cause unknown) ...	...	...	...	...		
205. A.—Diseases not already specified or ill-defined—	22	1,144	8	1,166	72	
Ascites ...	...	4	...	4	...	
Œdema ...	..	2	...	2	...	
Asthenia, Marasmus, etc.	19	268	70	287	17	
Shock ...	..	19	2	19	...	
Pyrexia of uncertain Origin	57	1,507	24	1,564	21	
B.—Malingering ...	9	372	...	381	3	
XVI.—DISEASES, THE TOTAL OF WHICH HAVE NOT CAUSED 10 DEATHS ...	...	...	...	...	...	
206. Accompanying patients	20	708	...	728	11	
207. Observation ...	15	188	...	203	3	
Total ...	5,402	69,237	6,087	74,639	5,271	

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